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Original Communications.

ARTICLE I.—*St. Luke's Hospital. Ovariotomy—Perforation of Intestines—Death.* Under the care of JOHN E. OWENS, M.D., Surgeon to the Hospital.

M. A. G., aged 28, was admitted to St. Luke's Hospital, April 17th, 1872. She had been married nine years, had never borne children, but had considered herself a healthy woman till two years ago, when suddenly a severe pain, which subsided in a week, attacked her in the right side, just below the hepatic region. Previous to the attack of pain, she noticed that the belly was enlarging; and that her clothes had become too tight. The enlargement grew more and more prominent, until she was tapped, and four gallons and three pints of brownish fluid were drawn off. A few days after the tapping (which was performed in St. Louis), the patient felt a hard lump in the cavity of the abdomen. Defecation, urination and menstruation were normal. The appetite was good, and the patient slept well. She had a good recovery from the tapping. During the first two weeks, subsequent to tapping, she filled very rapidly. This was the patient's history of her case.

The urine was examined between April 17th and 24th, with the following result: Sp. gr. 1030, normally acid, excess of urates, excess of mucus. Six and a half gallons of ascitic fluid were withdrawn May 17th. The fluid was straw-colored, sp. gr. 1024, reaction slightly alkaline, albuminous, coagulating almost solidly. The tumor was considered by all who examined the case, and by myself, sufficiently movable to justify ovariotomy, which was performed August 2nd in the presence of Drs. Gunn, Byford, Jones, Hay, Powell, and others. Upon opening the abdomen, the tumor was found to be quite movable, there being but few adhesions about its upper part. The difficulties of removal were, however, very great on account of the existence of intimate and strong adhesion about the pedicle and base of the cysts. A small cancerous growth was found growing from the posterior wall of the body of the uterus. These adhesions being, for the most part, confined to the base, permitted a tolerably free movement of the tumor. The clamp used in this case was Green's modification of an instrument, devised by Hill, of Augusta, Maine, for the removal of intra-uterine polypi. Hill's instrument consists of a "steel rod three-sixteenths of an inch in diameter, with a perforated shoulder turned at one end, the other being flattened and bent into the spring;" the straight shaft is six and one-half inches long. The ligature, for which Dr. Hill employs hempen thread and annealed iron wire twisted together, is cast around the neck of the polypus; "the two ends are then passed through the shoulder, which is pushed firmly up to the pedicle, and fastened to the extremity of the spring while it is closed by the hand. The moment the hand relaxes its grasp, the force of the spring strangulates the growth, and this force is constantly maintained until the ligature cuts its way through."

It must be well known that a ligature applied in the ordinary way, ceases to constrict the pedicle as soon as it cuts its way and becomes imbedded in the tissues around which it may be applied. In 1867, I removed a solid tumor from the cavity of the abdomen; the ligatures applied in the usual manner did not ulcerate their way through the pedicle for nearly four weeks. This defect is entirely obviated by the employment of the instrument above described. Wm. Warren Green, M.D., professor of surgery in the Medical School of Maine, has modified Dr. Hill's instrument and applied it to the

ligation of the pedicle of ovarian tumors. Green's modification consists of "a short steel shaft, moderately curved near the end, and grooved and perforated for the ligature. This screws into a steel plate, which supports upon its upper surface a short, upright, hollow cylinder, the tube being continuous with the groove of the shaft when fitted. An angular offshoot from this receives the spring. A screw and clamp are used for closing and holding the spring while the ligature is being adjusted. The ligature, which should be metallic (platinum being the best), being cast around the pedicle, its two ends are carried through the canal, and fastened while the spring is shut. The shaft rests in the lower angle of the incision, which is elsewhere closed. The plate rests upon the integument, the spring lying upon the pubis in the median line, and is supported laterally by the compress and binder properly adjusted."

I have described the "spring ligator" in Dr. Green's own words. A complete description by him may be found in "*The Boston Medical and Surgical Journal*," March 2nd, 1871.

The operation having been finished, the patient was placed in bed, warmth applied to the extremities, and stimulus administered. This patient operated upon Aug. 2nd, at 8:30 A. M., died August 20th at 1 P. M., of exhaustion from peritonitis and perforation of the small intestine, the result of inflammatory softening. The vomiting of a more or less acid greenish fluid began soon after the patient was placed in bed and continued with great obstinacy till the day of her death. Counter-irritation and ice-bags to the epigastrium, ices, sherry and ice, lime-water in various combinations, aromatic spirits of ammonia, bicarbonate of soda, and bismuth, being used as occasion seemed to require, produced little or no effect, except the bismuth, which, when given in forty-grain doses, rendered the vomiting somewhat less frequent. Opium in any form, as was found before the operation, was not tolerated, but chloral hydrate, taken immediately after vomiting, was the means of securing many moments of sleep. Nourishment consisted of broths, milk, sherry and egg, albumen with stimulants, administered both by the mouth and by the rectum. Catheterism was for a time employed, but eventually it became unnecessary.

August 5th. The wound except at its lower extremity had well closed by adhesive inflammation; diarrhoea during the day; pulse

120. Nausea was not marked, but the patient complained of constant burning at the pit of the stomach, and finally of the throat.

August 8th. Discharge from the abdomen began to grow offensive. From this date to within a day or two of her death, the cavity of the abdomen was washed out with carbolic acid water (strength 1 to 100 at first, and finally 1 to 80 of the temperature of the body), from one to three times daily, using at each washing from forty to one hundred and twenty ounces. Nothing answers the purpose of washing the cavity of the abdomen better than the ordinary nasal douche. A gum catheter attached to the free end of the rubber tubing is inserted into the abdominal cavity through the lower end of the wound. The glass having been filled, is raised above the patient's level, when the contents of the glass will readily find its way into the abdomen, after which, when the glass is depressed below the patient's level, the washings will rise in the glass, which may be emptied and if necessary refilled.

The night of August 9th, seven days after the operation, the wire ligature having cut its way through the pedicle, the "ligator" was removed.

August 10. Removed one suture pin, four silver wire sutures, and applied adhesive straps to support the wound.

August 11th. Remaining pins and wires removed.

August 13th. The discharge having been very profuse for some days, assumed at this date the character of faeces.

August 18th. The discharge saturated not only the body clothing, but the bed and bed clothes. With the hope of lessening the discharge of fecal matter from the wound, warm water enema was ordered. The greater part of the injection passed through the abdominal opening.

August 20th. Died at 1 o'clock, P.M. The pulse reached 132, and never fell below 120.

I. N. Danforth, M.D., pathologist to St. Luke's Hospital, kindly furnished to me the following report of the autopsy:

M. A. G., sectio cadaveris, 20 hours, post mortem. Body fairly nourished; rigor mortis strongly marked.

Head not examined.

Chest. Lung tissue healthy; lungs somewhat compressed and

pushed up by the encroachment of abdominal organs; heart normal, except in regard to position, its apex pointing to the third intercostal space directly above the nipple.

Abdomen. (The dissection and investigation of the condition of the abdominal organs was much embarrassed by inflammatory adhesions, which were very general, and quite firm.) The liver was firmly adherent to the diaphragm throughout its whole convex surface, by old adhesions, and enlarged to about one-third more than its normal volume. Its convex surface was far more convex than usual, while its concave, or lower, surface was less concave or more flattened than usual; in other words, the hypertrophy had taken place, for the most part, in an upward direction, because it encountered less resistance in this direction—the distended condition of the abdomen below being sufficient to prevent any growth downward. The liver presented no evidence of disease of its parenchyma. The spleen was considerably enlarged (to the bulk of the kidney) and very much softened; in fact, it was a mere mass of black semi-liquid pulp; microscopic examination demonstrated that this pulpy mass for the most part consisted of broken-down blood corpuscles. I also find in the spleen many globular, white, shining bodies, of the size of a medium-sized shot—some of them exceedingly hard, some semi-solid. Chemical and microscopic examination proved them to consist of little cysts, filled with carbonate of lime. Undoubtedly they were the malpighian bodies, which had undergone calcareous degeneration. I find no parallel case recorded in works to which I have access, however. Considerable inflammatory engorgement was found in the stomach; its vessels were distended and tortuous. Pancreas not notably changed. The omentum was pretty firmly adherent to the intestines by recent adhesions. The coils of intestines were closely matted together by organized lymph, and their separation was tedious and difficult. A fistulous opening, about $1\frac{1}{2}$ inches in length was found in the ilium about 12 inches above the ileo-cœcal valve; this was evidently the result of inflammatory softening. At this point the mucous lining of the canal was dark and cloudy with inflammatory engorgement; the membrane was also much softened. The fistulous opening was in the right iliac region. In the left side, extending from the tenth rib to the ant. sup. sp. process, in front of and covering the descending

colon, was an abscess, holding not less than eight ounces of pus—its internal wall being formed by coils of intestine, and its anterior wall both by coils of intestine and the abdomen. The abdominal incision was quite firmly united throughout nearly its whole extent. Kidneys quite healthy.

Pelvis. The pelvis proved to be a sort of pathological museum. If possible, the pelvic organs were more perfectly fused together than those of the abdomen. The uterus was slightly enlarged, the cervix filled with tough, reddish mucus. From its posterior superior aspect, a little to the right of the median line, a cauliflower growth was found as large as a hen's egg; this proved to be a beautiful specimen of villous cancer. The right ovary could not be found, but the pedicle of the tumor, and some condensed connective tissue occupied its place. In place of the left ovary, I found a cyst, filled with fluid fat, and beautiful plates of cholesterol—evidently the commencement of a *second* ovarian tumor. Behind the uterus, and between it and the rectum, rising a little above the brim of the pelvis, was a large cyst filled with reddish or brownish serum. In this serum many corpuscles very like pus cells were found, and also many half-grown epithelial cells welded together in patches like pavement epithelium. Several smaller cysts were found also filled with the same brownish-red serum, except one which was filled with the same cauliflower growth as I have already mentioned. Considerable free pus of recent origin was found in the pelvis—the product of degenerated inflammatory exudation.

In addition to all this, I have to note the great change which the general connective tissue of the pelvis and its contained organs had undergone. The ligaments and peritoneal folds were thickened, indurated and dark colored. The areolar tissue had lost its delicate appearance and become thick, dense and tough.

It is rarely the case that so much pathology and so little physiology—using the latter term in its broader-gauged sense—is found in the human body.

ARTICLE II.—*Gunshot Wound of Stomach and Kidney—Recovery.*

Reported by J. W. BROOKS, M.D., 857 Wabash Ave., Chicago.

Dec. 31st, 1871. W. C., about 30 years of age, had taken an early breakfast, and with his brother had been engaged in completing a job as carpenters. Was in the possession of uniform good health. I think had served some three years in the Union army during the war of the rebellion. At 11 o'clock they returned to their boarding house to make up their bills. He very soon discovered a Derringer pistol, carrying a half-ounce ball, lying in a drawer near him, took it, blew it into two or three of the muzzles, withdrew it and pointed it towards the stomach. His brother remonstrated; he replied, no danger, and at that instant one barrel discharged (it being, I think, a six-barreled one), taking a downward, backward, and slightly lateral direction. He staggered, partly falling on a bed, rallied to his feet, ran down stairs and sank on a lounge. In five minutes the writer saw him. There was great nervous shock; the skin cool, clammy and moist, prostration great, constant nausea, pain in the stomach, restlessness, respiration feeble, and some thirst. Surface wound about two inches to the left of the centre of the sternum, having cut the size of the ball from the lower edge of the cartilages of the false ribs. Directed him removed to an upper room and laid recumbent, head low, a cloth wrung from hot water to be placed over the wound and to be kept constantly applied, small pieces of ice (as large as a small filbert) placed in his mouth. Imperative orders that no instrument touch the wound, bottles of warm water to the feet, absolute rest. 3 P. M., no reaction, very restless, much nausea, pulse not improved. Gave one dram of opiate solution (prepared from the dregs of opium that had been used in the preparation of officinal tinct. opii), with tartaric acid, with directions to repeat in two hours if necessary, which was twice done. 8 P. M., still sick at the stomach, no reaction. At 8.15 P. M., vomited between one and two pints of coagulated blood; at 9.10 P. M., passed about three pints bloody urine, resembling the blood that flows from the vein of an individual killed by lightning; a fourth dram was now given. At 10.20 P. M., reaction commenced feebly; from 11 P. M. to 3 A. M., slept quietly, and on awaking vomited a large quantity of blood, which was the last blood vomited; at 4 A. M., passed an ordinary urinal half full of fluid, mostly blood; from

this time he urinated about once in six hours, blood always passing till the fifth day, when the urine was of a natural color and quality.

After the first sixteen hours he had no pain whatever, and slept well every night. At the expiration of forty-two hours he was allowed one teaspoonful of iced milk, in four hours two teaspoonsfuls; this was gradually increased till on the fifth day he was allowed one-third of a tumbler of the iced milk every six hours. Not an untoward symptom occurred. The hot cloth wet, was kept applied up to Jan. 6th, 1872. No other medicament was used. The fourth day the bowels moved naturally. On Jan. 8th, he was removed to his home in the country. On or about May 1st, he returned to the city, and followed his occupation as a carpenter. On examination the 7th of May, I found the ball under the skin, about two and a half inches from the spinous processes of the vertebrae, and nearly outside the eleventh rib of the left side, having passed out of the abdominal cavity between the eleventh and twelfth ribs. The direction of the ball, the vomiting of blood, the passing of blood by the urethra, the character of the shock and prostration, point unmistakably to the cutting of the stomach and left kidney by the ball.

ARTICLE III.—*Lateral Dislocation of the Knee Joint—Rapid Recovery.* By LOUIS P. GRIFFIN, M.D., 209½ Blue Island Avenue, Chicago.

On August 10th, 1871, I was called in great haste to see Michael Foley, residing at 371 Catherine Street, reported to have been badly injured by a kick from a horse. Saw the patient a few moments after his receiving the injury.

Examination proved the case to be one of dislocation of the left knee joint laterally, uncomplicated with fracture or even the slightest abrasion of the skin. A faint redness of the skin, however, two inches below the outer side of the joint, was the only symptom of external injury. Chloroform was administered, and with the assistance of Drs. Hutchinson and Hamilton, by making contrary lateral pressure, at the same time with slight extension, the dislocation was

readily reduced. The limb was then bandaged and a padded splint reaching from the hip to the external maleoli was applied to insure quiet. Cold water was then kept constantly applied to the joint by means of a small stream; no inflammatory symptoms made their appearance up to the 16th day, after which the water dressings were discontinued and passive motion of the joint commenced. August 27th, the patient had entirely recovered from the injury, and could use the limb without inconvenience. I am inclined to believe that the quick recovery was, in a great measure, due to the persistent use of the cold water dressings.

How many cases are there on record of lateral dislocation of the knee joint, where the patient recovered without leaving any traces of inconvenience in using the limb?

ARTICLE IV.—*Lecture on Chloral Hydrate.* By J. H. ETHERIDGE, M.D., Prof. Materia Medica and Therapeutics, in the Rush Medical College.

GENTLEMEN—I wish this afternoon to call your attention to an unofficinal preparation which is just now claiming much attention. It is *Chloral Hydrate*, and the evidences daily accumulating in its favor from all quarters of the globe, indicate that the expensive, and, thus far, indispensable opium, is soon to find a powerful rival that may completely supplant it.

Nearly forty years ago Liebig discovered this preparation, and until within three or four years it has remained a chemical curiosity. To Dr. Liebreich, of Berlin, are we indebted for a knowledge of its therapeutic value.

Chemically, chloral is tri-chlorinated aldehyd, *i. e.* aldehyd in which three of the hydrogen atoms have been replaced by an equal number of atoms of chlorine, and its composition is represented by the formula C_2HCl_3O . It is prepared by passing a stream of chlorine gas through absolute alcohol, until the entire contents of the flask is converted into a solid, white, crystalline mass. For this purpose the chlorine gas must be forced through the alcohol 60 or 70 hours. The contents of the flask is then purified by sub-

limation, which yields a snow-white, dry, crystalline powder. Treated with an alkali, chloral and its hydrate yield chloroform and a formate, ($C_2HCl_3O + NaHO = CHCl_3 + NaCHO_2$). Upon this fact is based the theory that this drug is converted into chloroform in the circulation, and thus is produced its peculiar effect. From this reaction of an alkali we also obtain a safe and reliable test for the purity of chloral. To a solution of potassa add some chloral; if the latter be pure, it *will not color the solution, and the smell of pure chloroform will be emitted.* If a brown precipitate or color be formed, or if pungent gases be evolved, the chloral is impure and dangerous.

Therapeutically, chloral hydrate is a nervous sedative.

Dr. Strothers states that locally it is of excellent service in "neuralgia, pleurodynia, rheumatism, gastralgia, nausea and vomiting." A saturated aqueous solution is applied over the painful part, with slight friction and glycerine; olive oil or cream is used as a subsequent dressing. Thus used some of it is probably absorbed, and a rubefacient action is also produced.

Hypodermically, it is *not* to be used, because of its great liability to produce abscesses.

It is inadmissible in organic heart and brain disorders.

Its effect on the alimentary canal is not prominently noticeable. It neither vomits nor purges as a rule.

Its effect on the heart is at first to increase its action; subsequently the heart beats are normal in frequency. The animal heat is decreased, and thereby it is inferred that tissue metamorphosis is arrested. Long continued use of it is said to injure the health quite seriously "by making the blood watery." Prof. N. R. Smith, of Baltimore, mentions some cases where chloral had been taken for a long time, daily, followed by desquamation of cuticle, and acute ulcerations of the fingers, particularly about the nails, attended by hyperæsthesia, accelerated pulse, and general malaise. The Professor regards the long-continued administration of this drug as productive of toxical effects somewhat similar to those produced by ergot.

Perspiration is diminished, and the effect on the genito-urinary apparatus is at first to decrease the solid constituents of the urine, and increase relatively the watery portion. Subsequently the elimination of solids is considerably increased for several hours.

Its chief effect is manifest on the cerebro-spinal centres. Hammond claims that its first effect is to increase the amount of blood in the brain, and this is quickly followed by cerebral anemia, which continues till the patient awakens. You readily recall to mind the detailed description I gave you early in the course, of his (Hammond's) mode of procedure in investigating the effect of the bromides on cerebral circulation. The patient experiences relief from small pains, as of neuralgia, in lighter forms, in eight or twelve minutes, and if the dose be large enough, sleep ensues in about twenty minutes. In very severe cases of pain, or delirium tremens, sleep cannot be procured sometimes for several hours. The range varies from a few moments to hours, before hypnotism is secured.

Common nervous headache is frequently relieved by 10-gr. doses. Be sure your case is one of what may be called "nervous" headache, before giving chloral.

Neuralgia, generally, in its various forms, has been relieved by 20 grs. or more, repeated once in two or three hours. I expect, however, to tell you a better method of controlling this affection in its severe forms, when we come to speak of hypodermic injections.

Neuralgic rheumatism, gout, and inflammatory rheumatism, are stripped of their terrors by administration of this drug.

Choreic manifestations are most excellently controllable by chloral; and its effects are particularly prominent in those cases where the patient is in danger of dying from exhaustion produced by the constant and violent jactitation.

After *all* injuries accompanied by pain, this agent can be profitably used. During the late Franco-German war, English surgeons used chloral in nearly every case. These surgeons left their homes in England of purpose to follow in the rear of each army, and after battles they assisted in caring for the wounded. In many instances the wounded, being very numerous, would lie nicely for hours under the influence of chloral, free from pain, awaiting their turn for the surgeon to amputate or dress, as their cases demanded.

The atrocious pains of nephritic or biliary colic can be effectually quieted by this drug.

As a palliative in malignant diseases, it is extensively used; 10 grs. thrice daily, answers in the worst cases. In many cases, double that dose at bedtime, only suffices.

Superintendents of insane asylums regard it as the king of soporifics, in procuring sleep and quietness, and consequent amelioration in some forms of insanity.

Closely allied to this affection is delirium tremens, and evidence is daily accumulating of the superiority of chloral over every other remedy in securing sleep. In this condition the doses must be large, and it is astonishing to see what immense doses can be borne. In recent cases the dose need not be over one scruple every two hours, but where the delirium and sleeplessness have continued many days and nights, the difficulty is much greater in inducing sleep, and the danger of the patient at best is imminent, for experience teaches that such subjects are liable to die with or without medication; hence you will find such patients in some cases bearing drachm doses hourly, till sleep supervenes, and subsequently awakening sane and weaker. You will, occasionally, meet with cases where death will result with the lightest treatment. Extreme cases of this affection need prompt, vigorous treatment from the very first, or they will die in spite of every effort an intelligent physician can put forth.

In obstetric practice, many physicians have used chloral with the happiest effect. Given in cases of rigidity of the os during labor, with irregular ineffectual pains, in sufficient quantity to produce sleep and check pains, it is followed by recuperation of strength, and patient is awakened by severe pains which result in speedy delivery. Dr. Da Cunha, of Bombay, gives three cases of retarded labor in which he used half-drachm doses to procure sleep, which were followed by sharp pains after a refreshing sleep, and a speedy delivery in each case. It has also been given in the first stage very frequently, where there was much restlessness and exhaustion present. The evidence of its good service is daily increasing in puerperal convulsions. Sometimes all remedies fail but chloral—in large doses—in puerperal mania.

Given in five-grain doses, hourly, it will usually relieve hiccough of prolonged and dangerous character.

In asthma its success is doubtful.

Cough of measles (from bronchitis), which is especially troublesome in children, is frequently quickly checked.

In tetanus of new born children, it has been used with good results, given in one or two-grain doses, on the occurrence of each

convulsion. It is also recommended in grain doses in infantile colic, but my experience in its use in this troublesome affection does not lead me to recommend it very strongly.

In traumatic tetanus it is almost absolutely sure of answering its desired end. Herein it succeeds when other remedies fail, and it must be given heroically.

I have now enumerated only a portion of the diseases in which chloral is used. Many experiments in various directions have been tried—as in minor surgical operations (one case of amputation of the leg is reported, even), in the exanthematous fevers, in incontinence of urine, in spermatorrhœa, etc., etc., but the diseases I have enumerated seem to be the principal ones to which its beneficial effects are now chiefly confined.

One point I must here allude to before proceeding farther, and that is, the alarmingly increasing indulgence in this substance as a narcotic luxury. Men and women who suffer from sleeplessness habitually, are easily tempted to resort to it, and many, very many do it. Amongst its votaries are business men harassed with great anxieties, school-teachers, book-keepers, invalid women made weaker by family cares; in each of these instances I have seen chloral victims. This bad habit is not yet so prevalent as opium-eating, or as habitual bromide-taking of which I recently spoke to you.

VEHICLE AND POSOLOGY.

The menstruum should be large, as the effect on the mouth and fauces is almost escharotic. Some aromatic syrup is the pleasantest vehicle to take it in. My usual prescription is two scruples to the ounce, and then a teaspoonful or dessertspoonful gives five or ten grains as desired.

The dose must be graduated to the case; drachm doses to a baby, or grain doses to an inebriate are manifestly incongruous. Physicians have, until recently, generally said, "There is no dose of chloral." Some will tell you, "I get uniformly good results from fifteen-gr. doses," and others, "I never use less than forty-five grains in severe cases to start with, and subsequently, as needed, and I have never yet found any ill results following." In my own practice, however, I have settled down to scruple doses, excepting in delirium tremens and tetanus. In these two cases I give much larger doses. The severity of the cases must be your

guide. The enormous doses borne by mania a potu and tetanic patients is simply astonishing. The physicians of the Royal Infirmary of Edinburgh, administer it in thirty and sixty-grain doses every half hour, repeated three or four times, "and a deep and lengthened sleep generally ensues, the general result being," they say, "to keep the wards almost empty from the rapidity with which the patients are enabled to be discharged."

Dr. Lansdown of the "Bristol General Hospital," reports two cases of tremens in which the beneficial effects of large doses are shown. To the first case he gave sixty grains, and "this made him drowsy and nothing more;" in thirty minutes, sixty grains more were given, and he slept two hours. The second case—a female—was treated in a similar manner (two one-drachm doses given thirty minutes apart), and in an hour after the second dose, another drachm dose was given per rectum. She then slept heavily and was soon discharged.

In tetanus, the doses are not so large at first, but they are *often repeated*, so that in the aggregate as much or more is taken; usually, thirty or forty grains are given to start with, and then fifteen or twenty grains are given every two hours according to the indications.

A case is recently related in the London Lancet where a man took seven drachms (420 grains) and no bad results followed. This amount was all taken in one night. Another case is reported by Dr. P. C. Williams, of Baltimore, where the "patient took about 600 grains (10 drachms), the only appreciable effect of which was to produce coma, lasting 18 hours, and ending in complete recovery without any medicinal treatment whatever, during the state of coma."

I can hardly believe that these enormous doses are all absorbed by the alimentary canal within an hour or so. Possibly they were absorbed slowly, thus prolonging the sleep, and were rapidly eliminated by the lungs and skin.

Dr. Richardson, of London, regards 120 grains (2 drachms) as the maximum dose, "dangerous but not of necessity fatal. Beyond one hundred and twenty grains," he continues, "the danger increases, and one hundred and eighty grains may be considered a dose that would in the majority of cases prove fatal." I quote this author because he is doubtless the best living authority

we have on the effects on the human system of the organic compounds.

Given with an alkali preparation (in syrup) chloral is said to act much more rapidly—probably because the alkali facilitates decomposition of the chloral and the absorbing process.

Much more might be said of this wonderful drug, but our hour is drawing to a close. At our next meeting, I shall compare this drug with opium, and indicate some of its superiorities.

ARTICLE V.—*The Panaritium (Felon)—Consequences and Treatment.* By CARL PROEGLER, M.D., of Addison, Ill.

It may seem strange to write an elaborate article on the above subject, but as a learned and celebrated surgeon (Langenbeck) said: "Major surgery has often to show very little results, but minor surgery which has to deal with the every-day occurrences and accidents of life, is great in its results by the enormous number of small results it gains;" therefore I may be excused in writing about minor surgery to-day.

The real panaritium (in a narrower sense of the word), is an acute inflammation which leads to suppuration, with an inclination to necrosis of the subcutaneous connective tissue, localized on the narrow space of the soft parts of the volar surface of the fingers and hand, but is also able to produce, by neglect and mismanagement, great suppuration, which by its results may destroy the function of the finger and even hand. (Huettner.)

According to this definition the character of the panaritium lies in the acuteness and quick progress of the inflammation to suppuration.

The causes are numerous; and according to statistics and numerous observations the working classes of our population, and among these again those who use mostly their fingers, as maid-servants, joiners, carpenters, mechanics, etc., etc., contribute largely to our cliniques and surgeons. Therefore we are disposed to believe that the panaritium is a traumatic inflammation; its peculiarities are mostly governed by the anatomical circumstances of the part on which the inflammation develops itself.

I need not explain to physicians more at length the topographical anatomy of the hand, because I presume that every educated medical gentleman knows the relations of the bones, tendons, *fasciæ*, vessels and nerves. But I shall direct your attention to a peculiarity of construction of the soft parts on the volar surface of the finger.

The *subcutaneous connective tissue on the volar side of the finger and hand* differs from the subcutaneous connective tissue of the dorsal side and the remaining upper extremities, *by a strong development of thickness, by a construction of short and rigid connective tissue fibres*, which do not, as on nearly all other parts of the extremity, run parallel with the long axis of the extremity and connect the skin with the *fasciæ* in an acute angle, but, on the contrary, are drawn down perpendicularly by the papillary body.

By these anatomical relations, the skin is almost absolutely immovable on the deeper lying parts, while on the other side the skin on the dorsal surface of the hand and finger, fore and upper arm, can be moved without any difficulty for several lines on its base. In this peculiar construction of the subcutaneous connective tissue on the volar side, lies pretty much the whole secret of the panaritium.

Whether suppuration be the cause of an emigration of white-blood corpuscles or cellular proliferation, a swelling of the inflamed suppurative tissues will be always a companion of it. This swelling draws the blood and lymphatic vessels into connection. Their compression causes a collateral oedema, and when compression has risen to a certain point, the blood vessels become perfectly strangulated, and necrosis of tissues must necessarily ensue.

The rigidity of these parts is always very great, so that necrosis of the infiltrated connective tissue is most always present. Only a correct treatment may save these parts from local death; sometimes the panaritium may end in an exfoliation of a necrosis, with pus-impregnated mass of connective tissue.

The presence of this necrosed tissue gives rise to more inflammation of the surrounding parts, and therefore nearly always extensive swellings are present, mostly on those places which are very much prone to swelling. On the finger these places are not the soft parts of the volar surface, but the soft parts of the dorsal

surface, being farthest away from the original starting point of suppuration.

For young beginners cases of this kind will have something startling, if not well versed in their practice. You will behold a finger with a shiny, oedematous swelling of the skin and subcutaneous formation posteriorly, the volar surface but little swollen, but in reality the local symptoms are here to be found, and on the volar surface you will find them.

The pain, the true companion of the panaritium, is of an excruciating character, and Huetter, a German surgeon, says: "I do not wish anybody to make the experience on themselves of a panaritium, but if you ever have made it, then you will esteem the more the surgical therapeutics for such a complaint." As on the volar surface of the finger are an abundance of nerves, etc., the intensity of the pain may be easily conceived.

Fever is not always present, but very often a panaritium is ushered in by fever. Huetter explains this in the following manner: "The amount of pyrogone (fever-producing) substances is rather small, but resorption takes place in a relatively great measure, because the pyrogone substances of the pus stand from the moment of their formation under a very high pressure. This pressure caused by the rigid, short fibres of the volar subcutaneous connective tissue, forces the pyrogone substances into the root of the lymphatic vessels; reaching by this way the blood, its fever-producing qualities are revealed."

A teaspoonful of pus under the skin on the dorsal surface of the finger very rarely produces fever, but a few drops of it in the subcutaneous connective tissue of the volar surface are sufficient to raise the thermometer to 95 and even 100 degrees Fahrenheit.

And here I may remark that sometimes, *not often*, inflammation comes to a standstill, the advance of pus which surrounds the already mentioned necrosed mass, causes, at the height of the inflammatory stage, a perforation of the papillar bodies. A few drops of pus find their way into the rete malpighi, elevate the cuticle, a small vesicle opens and the pus escapes, pain ceases, granulations set in, the opening becomes larger, and by pressure the necrosed masses are forced through.

This is the favorable course the panaritium sometimes spontaneous-

ously takes, and even in this stage an active interference at the right place and in the right manner may shorten such spontaneous attacks.

The public at large has such a dread of "cutting" that very seldom does a case of panaritium present itself to the surgeon in the initial stage. Very often are the ravages so great that even a periosteal phlegmonous inflammation takes place. It appears generally on the finger as a suppurative synovitis of the sheath of the long flexor tendons, both sheath enveloping the flexor profundus and flexor sublimis. As soon as suppuration reaches this long synovial cavity, suppuration invades the whole cavity, involving even sometimes the whole hand.

It is well known that the felons of the thumb and little finger are the most dangerous, because the flexor pollicis longus has a long sheath which branches out to the root of the hand and the ligamentum carpi volare transversum.

[To be continued.]

Selections.

On the Application of Gases as a Means of Destroying Contagion.—
A paper read before the Medical Society of the College of Physicians, by Dr. CAMERON, Analyst to the City of Dublin. With discussions.

There is no evidence of a satisfactory nature to prove that the ordinary emanations from decomposing animal or vegetable substances are the cause, *per se*, of any contagious disease.

It is more reasonable to believe that zymotic diseases are each of them produced by the introduction of a specific *virus* or *germ* into the animal economy. It is probable that some zymotics are caused by germs which are incapable of multiplication in the body. Such diseases are not, therefore, contagious in the ordinary sense of that word—that is, they are not propagated by matters which are cast forth from the bodies of the sick. In the valuable Report on Yellow Fever, prepared by Dr. J. C. Nott, and published in the Annual Report of the Board of Health of the City of New York, for 1870-71, very strong evidence is adduced to prove that yellow fever is caused by germs, which are not bred within

the body. It is, however, shown that those germs may be transported from place to place in the clothes and baggage of men. Dr. Nott brings forward the most convincing proof that decomposing organic matter does not, *per se*, produce yellow fever; and shows that the germs which cause the malady are devitalized by exposure to a temperature of 32° Fahrenheit.

The use of disinfectants is, however, to be commended, because they preserve the atmosphere free from malodorous gases and vapors. Some kinds of so-called disinfectants are also of great utility as a means of preventing the putrefactive decomposition of organic substances. These disinfectants are properly termed antisepsics. They do not altogether prevent animal and vegetable matters from decay; but they greatly retard that process, and then decomposition without sensible putrescence only takes place.

What is it that we try to destroy when we generate chlorine gas in a room which has been tenanted by a small-pox patient? Is it a gas, or a vapor, or an abnormal condition of one or more of the ordinary constituents of the atmosphere? If the cause of the disease lies in an abnormal condition of the atmosphere—in the occurrence of a "pandemic wave" in that fluid, the disinfection of the air of a particular room would be useless, because, where ordinary ventilation is adopted, the purely gaseous contents of an apartment are wholly renewed many times in an hour. What, therefore, would be the use of disinfecting a room if the atmosphere, on entering it, be already tainted? If cholera, small-pox, rinderpest, and other zymotic and epizootic diseases, are caused by abnormal atmospheric conditions, why is it that they speed along the highways of commerce, that they spread most rapidly as the density of population increases, and that they prevail most in those places where least attention is paid to the removal of organic filth? If the amount of carbonic acid in the atmosphere were increased from its normal proportion of 4 parts in 10,000 parts of atmospheric air to 4 parts in 100, serious disease would be the result; but it would afflict all classes alike, and would ravage the country regions equally with the urban districts.

A careful examination of acknowledged facts relative to nearly all the more important epidemic diseases, fully justifies the belief that each is produced by the introduction of a *materies morbi*, or germ, or virus, or some palpable substance from the bodies of the sick into those of the healthy; and by that way alone. This view of the mode of propagation of zymotic diseases is, perhaps, most conclusively proved by admitted facts in relation to two contagious diseases—namely, *scabies*, or common itch, and syphilis.

The itch is a good example for the purpose of illustrating the nature of contagion. The *materies morbi* is easily seen; it is an entity, it possesses reproductive powers, begetting its own kind, and it is never found except in the bodies of higher animals. The

non-contagionists must admit that, at least in the case of this disease, the theory of the contagionists is proved to demonstration, and simply because the virus of the disease is so large as to be almost seen by the unassisted eye.

In general the contagious matter appears to be excessively minute. Chauveau (*Comptes Rendus*, October 19th, 1868), diluted the liquid taken from the pustules of sheep-pox with 10,000 parts of water, and found that it still retained its power of producing small-pox in the sheep. Vaccine matter from man may be diluted with ten times its weight of water without losing its contagious property to a sensible extent, but if diluted with 500 parts, it becomes perfectly inactive. Hence it is evident that the contagious liquid of sheep-pox is many times more powerful than vaccine, probably because it contains a larger number of the actual particles, or germs that produce disease. These germs have been carefully sought for by eminent pathologists and microscopists. On the whole, the results of the investigations of these inquirers have not been barren. It is shown that vaccine contains, in suspension, minute quantities of two kinds of solid particles—*leucocytes* (which resemble pus corpuscles), and smaller particles not exceeding the $\frac{1}{20,000}$ th of an inch in diameter. The leucocytes may be easily separated from the other particles and the serum; and they are found to be perfectly inactive. The vaccine property must, therefore, reside either in the small particles or the clear serum. By means of the diffusion apparatus, Burdon-Sanderson and Chauveau have succeeded in obtaining the serum free from the small particles, but failed to produce vaccinia with it either in man or in the ox. These important and accurately conducted experiments prove that the actual cause of cow-pox, and inferentially of other kinds of small-pox, is a minute solid and insoluble body.

It has been strongly urged as an argument against the germ theory of disease that it fails to account for epidemics. Why should small-pox die out in Ireland, and then suddenly reappear and rage with great violence in many parts during the last twelve months? How is it that cholera periodically invades the West from the East? Why does an epidemic gradually increase in intensity, attain a maximum of virulence, and then gradually die out? It is difficult to answer these questions satisfactorily, because all the factors concerned in the propagation of zymotic diseases are not known.

If it be admitted that small-pox and certain other diseases are sometimes caused by matters thrown off from the sick making an entry into the bodies of healthy persons, then the phenomena of epidemics may be shown to be explicable without abandoning the theory that small-pox (and some other diseases) are only communicable from individual to individual. We can readily understand that the low forms of life which produce epidemic and

epizootic disease might, under favorable circumstances, multiply to a greater extent than usual. Under such circumstances the chances of their getting into the bodies of animals would be proportionately increased, and a local epidemic would be the result. Intercommunication between the place where the germs were first developed and other places would soon scatter them over areas more or less considerable.

In some epiphytic diseases we find the analogues of epidemic and epizootic maladies. The "blights" in the cereals and other plants are caused by the ravages of minute parasitical fungi. A common disease of wheat grain is occasioned by the presence of the fungus *Uredo caries*, the seeds, or spores of which are so minute that, according to Bauer, a single grain of wheat may contain 4,000,000 of them. The fungi which produce the diseases of plants do not originate sporadically, nor are they ever found except as parasites. For years a whole locality may be absolutely or comparatively free from them, when suddenly these pests will appear and destroy whole crops. It is the same with respect to the ravages of plants by insects; suddenly the caterpillars of moths will appear in vast numbers in localities where they had previously been very scarce. A few years ago the extensive plantations at Dunsany Castle, county of Meath, became suddenly the abode of myriads of caterpillars, which speedily stripped the bark and leaves of a large portion of the trees.

If species of bacteria or similar objects are the contagia of certain diseases, then we can understand why it is that so many persons who are near small-pox and fever patients escape, whilst persons not in contact with the infected catch the disease. The bacteria thrown off from the bodies of the sick are not equally diffused throughout the air as a gas or vapor would be, but, for the most part, are scattered about on the clothes and on other solid surfaces, from which they may be conveyed to great distances without making their entry into the body of any one. Contagion in general is conveyed by means of clothes or other solid substances, and is rarely directly propagated through the air. In the Report on Yellow Fever, by J. C. Nott, that writer says:

"No evidence, I think, could be more complete to establish the probability of a disease. All facts being opposed to its contagiousness, I can come to but one conclusion, viz., that the germ may be closed up in trunks or boxes, or be shut up in the baggage car of a railroad, transported from one point to another. I have never seen anybody communicate the disease where luggage was not taken with the patient, and as we find that the disease generally goes everywhere that steamboats go from our infected ports in epidemic years, I see no other conclusion than the one I have before given, viz., that the germ is carried closed up with baggage, and not generated and communicated by personal contagion."

Before the question of bacteria as a cause of zymotics arose, Haygarth, Murchison, Ryan of Lyons, and others, denied that small-pox poison was directly transmitted through any considerable space in the open air. Murchison asserts that the poison was not contagious in the open air at a distance of half a yard. Chauveau states that the contagious matter of small-pox is volatile—that the solid particles float into the air at a temperature of 40 degrees centigrade, but in his experiments the matter was carried away by a current of vapor.

The results of several experiments made by the author show that bacteria and the contagious particles of vaccine lymph resist, when protected by an extremely thin film of solid or semi-solid matters, the action of chlorine and sulphurous acid gases applied to them in larger quantities than are usually employed in disinfection. The filtered meat-juice used in these experiments contained only five grains of solid matter per ounce of 480 grains—less than one per cent. The object glasses were dipped in this liquid, and many of them allowed to drain before being subjected to experiment. We may readily conceive then how extremely thin the film was that separated the bacteria from the gases set free. It is extremely improbable that the actual contagious particles of small-pox or cholera, or similar diseases, are ever detached from the serum and other matter with which they associated when thrown off from the body. They are, no doubt, invested with some such film as that which protects the contagious granules in vaccine. If ordinary gaseous disinfection sometimes fails to destroy the vitality of vaccine, and has no effect on ordinary microsomes, we cannot rely upon it as a means of destroying the contagiums of zymotic diseases which certainly are near akin, if not to bacteria, at least to the virus of vaccine. The recent experiments of Grace Calvert show that bacteria sustain a very high temperature without being killed; and, on the other hand, Melsens, in the *Journal de Pharmacie et de Chimie* for September, 1870, shows that vaccine lymph retains its activity when exposed to the intense cold of 80° centigrade. The low forms of life are often capable of resisting influences which, in the case of the most highly organized animals, would produce fatal results.

No doubt, chlorine, sulphurous acid, and some others of the so-called disinfectants, destroy bacteria and contagia; but in order to do this they must be employed in much larger quantities than they have hitherto been used.

The complete disinfection of a room tainted with the poison of contagious disease can only be accomplished by the most thorough cleansing. The paper should be removed from the walls, and the latter scraped. The ceiling should be washed and whitewashed, the woodwork and floors should be scoured; all these detergent processes remove—probably without destroying them—the conta-

gious particles. The old-fashioned plan of simply whitewashing the walls and ceiling of a room, and washing the woodwork has much to commend it, and it is infinitely more efficacious than gaseous disinfection without liquid applications. If the whitewash does not kill the bacteria, it certainly imprisons them securely.

After some remarks from Dr. Malachi Burk, Dr. Grimshaw said that the process of disinfection was carried out by the officers of the Public Health Committee after this fashion. A man comes with a pint of chloride of lime in an old battered tin; he dilutes it with sulphuric acid, places it in a vessel in the middle of the room, shuts it up and leaves it there until the next morning. The usual course when he turned his back was for the owner of the room to throw the disinfectant out of the window. There were but two men at present employed by the Public Health Committee disinfecting the whole of Dublin, so that chemical disinfection, or disinfection by gas, was not fairly tested in this city; and it appeared from a statement in the public journals, that only one in 35 of all the houses reported as being infected by small-pox had been disinfected. On the whole, so far as they knew at present, the only effective disinfectant was a high heat, and even more important were detergent measures. It was only recently it had been announced in Dublin that gas was a disinfectant. He found, on looking over the records of Cork Street Hospital, that formerly such a thing was never attempted as trying to purify a house by fumigation.

Dr. Darby said they did not know what was the cause of epidemic disease. Was it those little animals referred to? It was not at all proved they were the cause of disease, and he did not believe they were. He had come to the conclusion that there was scarcely any disease which affected the human body that might not at one time or other become epidemic. He had been for over 30 years connected with a large public institution, and he had not the slightest doubt, from his experience there, that vermin were sometimes epidemic; that itch was epidemic; that chronic purpura was epidemic. He had had thirty cases of chronic purpura in the hospital at one time after the famine. It was supposed by some that disease was propagated by a germ, but he did not find any satisfactory proof of that proposition. Cerebro-spinal arachnitis was not known in Ireland until it appeared in his hospital. It remained for the late Dr. Mayne to throw more light on the disease than he could. All he could do was to bring case after case forward at the Surgical Society in order to elicit information, but not a man in the room knew anything about it, and many of them thought he had found out a mare's nest. It appeared among healthy boys in the workhouse school, and it attacked none but boys of from 10 to 15 years of age. It was next seen in Belfast, and then it came to Dublin. Take the present epidemic of small-pox. It went about in the same way.

Dr. Burke rose to order, and submitted that Dr. Darby was not speaking to the question.

Dr. Darby believed that plenty of soap and water and pure air were the best disinfectants. When small-pox appeared in the hospital under his care, he placed over the doors of the ward a curtain steeped in a solution of chlorate of lime. He did not know that it did any harm, and he doubted whether it did any good; but he had great faith in fresh air and in cleanliness. The fact that these epidemics come suddenly, rise gradually to a maximum, and then decline, was an argument against the germ theory.

Dr. Finny thought the last two speakers seemed to have misunderstood what Dr. Cameron meant to suggest. Dr. Cameron did not state that bacteria and fever germs were identical, but he assumed that the fever germs were animal or vegetable substances, certain small molecules, each propagating its own specific disease, and no other—the virus of small-pox giving small-pox, that of scarlatina scarlet fever, and that of vaccine cow-pock. He, secondly, assumed that the bacteria, or vibrios, or microzymes, are found in putrescent matters, and also wherever there is any disease that appears to be spreading from one individual to another. He did not, however, assume that the bacteria were identical with the germs of the disease.

Dr. Lyons rose to say that he could not be taken as concurring in the idea that minute microscopic animalculæ or vegetation were the germs or origin of any but a few and well defined forms of cutaneous disease. He thought they were traveling in an entirely wrong direction in looking for the origin of epidemic disease in that quarter. He had himself an idea that diseased processes, however variable in their superficial manifestations, were, when viewed from a profound pathological point of view, more nearly allied, and much more closely similar in their essential conditions than would be supposed from a superficial view of them. He (Dr. Lyons) for one was not prepared to admit that all diseases were propagated by contagion, that like generated like in disease, or that contagion would explain the development of all epidemic diseases. He doubted if, in the present condition of knowledge, any two persons in that room would agree as to what was, and what was not, contagion, or what was to be accepted as the element of contagion in any given case, or, if admitted, how its action was to be explained.

After some observations by Dr. Arthur Wynne Foot, the Chairman thought Dr. Cameron had, to a great extent, established the object he had in view with respect to the action of disinfectants. He had shown that it required a much higher degree of concentration to destroy animalcules than had been heretofore considered necessary. In the course of his observations he alluded to two diseases with which they were familiar, itch and syphilis, as un-

mistakable examples of contagion. That every one would admit; but they would also admit that there was a wide difference between contagion and epidemic influences. That was an important matter to keep in view. With respect to disinfectants, they all knew how often disinfectants and deodorizers were confounded. As to the germ theory, he was not very well versed in it, but he was not aware of any fact proved that pointed to the existence of particular germs for disease. He thought until they had something more tangible than they had as yet, they were not able to say that disease was propagated by germs. The Metropolitan Sanitary Board of London requested returns to be made from all the vestries who employed people in cleaning the sewers, of the number of persons employed in that way, the age of those persons, the duration of their employment, and the cases of fever amongst them. Two hundred and thirty-four individuals were included in the returns. A great many of them had been engaged seventeen years in that occupation, and the whole sum of the cases of fever amongst them was six. That struck him as a very remarkable event.

Dr. Cameron, in reply, said that Dr. Finny had so clearly put his views before the meeting that he found it unnecessary to recapitulate them. All he could find in Dr. Grimshaw's remarks was that there was a something in contagion which heat destroyed. If that something were any of those abnormal conditions of the air, or loss of nervous energy, of which they had heard, he did not see how an increase of temperature or whitewashing could destroy it. There was a something which was capable of communicating disease from one individual to another; for there could be no doubt there was contagious matter in small-pox, pustules in farcy in the horse, in pleuro-pneumonia in the ox, and in vaccine, and we could produce any of those diseases by introducing a certain kind of morbid matter into the blood of an animal. He did not mean to say chlorine would not do some service. All he wanted to say was, that unless used in very large quantities it did not destroy the lowest forms of life, and then he asked why did they use chlorine at all? The germs of disease, or, at all events, bacteria, did not float in the room, and they were not destroyed by the quantities of the disinfectants ordinarily used. To destroy them larger quantities must be employed, and they should be, in great part, used in solution. He had dipped a brush in a strong solution of chloride of lime, and passed it over a glass on which there were bacteria. He then passed over this, water which had been previously heated to a high degree, and he found the bacteria were destroyed. With regard to syphilis being an epidemic, the first time it was heard of it assumed something of that character.

The only reason why syphilis did not become an epidemic was that its poison was not disseminated through the air as easily as other kinds,—it was more ponderous. Dr. Russell, of Glasgow, a

very accurate observer, showed that all the persons connected with the Fever Hospital of that city, the ward-maids, the nurses, the store-keeper, the man at the gate, sooner or later caught fever. There were different degrees of rapidity with which the poison of contagion was propagated. Actual contact was required to give syphilis, whilst small-pox, being more volatile, might be carried in minute particles in the clothes. As to what Dr. Smith had said about sewers, it establishes the theory of contagion. There was no other theory that afforded a satisfactory solution to immunity from epidemic diseases in certain cases. The immunity of the persons employed in cleaning the sewers merely showed that decomposing ordinary animal and vegetable matter, *per se*, would not produce zymotic disease. He knew a family in the country who persistently drank water that contained 20 grains of organic matter per gallon; it had even a bad odor, and it came from a well so situated that the drainage from the stable-yard and out-offices flowed into its shaft. The family, as he had said, drank it continuously, and yet no contagious disease had ever broken out amongst them. Why? The water was impure, it had a bad smell, but the germs of disease were not there. Time was a great factor in disinfection. He found that the quantity of disinfectant matter applied in gaseous form which would not kill bacteria in a short time, would do so after a prolonged contact. They could not properly disinfect a house in less than twenty-four hours. No house in which a small-pox patient had died could be considered free from contagion until the walls were scraped and whitewashed, and the place thoroughly swept out.—*Med. Press and Circular.*

Cerebro-Spinal Meningitis. By J. H. SOUTHALL, M.D., Little Rock, Ark. (Read before the Pulaski County Medical Association, and published at the request of the Association.)

Mr. President and Gentlemen of the Pulaski County Medical Association:

It is with no false assurance of diffidence that I to-night, in accordance with the appointment of our president, submit for your consideration, and in furtherance of some discussion, as I understand its object, the subject of Cerebro-Spinal Meningitis; and in parenthesis will express the hope that the many imperfections discoverable, may have their "quantum sufficit" of allowance bestowed, because of your inexperienced narrator, and the brief space I propose to allot its consideration herein.

To begin, it is contended by many physicians that the name cerebro-spinal meningitis is not a very suitable one for this affection, being "too much of an anatomical bias, and an incomplete apprecia-

tion of facts." Notwithstanding, they have never rectified the name, except in applying such synonyms as petechial fever, spotted fever, malignant purpuric, fever febris, nigra-malignant meningitis, typhoid meningitis, etc., none of which seemingly express as much as the former, being certainly more destitute of the anatomical peculiarity, or proper appreciation of facts, inasmuch as all, or nearly so, are derivative from some one or more symptoms that are not at all times present in any single case. But, in fact, there is nothing in a name. Not one of us would treat disease according to what it might be styled, but address our remedies towards its cure through their application to the symptoms. The definition of cerebro-spinal meningitis, as adopted by Clymer, is that of an "acute specific disorder commonly happening as an epidemic, general or limited, and rarely sporadically; caused by some unknown external influence of sudden onset, rapid course, and very fatal. Its chief symptoms, referable to the cerebro-spinal axis, are, great prostration of the vital powers, severe pain in the head and along the spinal column, delirium, tetanic and sometimes clonic spasm, and cutaneous hyperesthesia, and in some cases stupor, coma, and motor paralysis, attended frequently with hæmic spots. Its morbid anatomical characters being congestion and inflammation of the membranes of the brain and spinal cord, although there is reason to believe that the evidence of these changes may be wanting even in cases of long duration." Of its history little is known prior to the beginning of the nineteenth century, it having occurred probably both in this country and Europe without being recognized as a special disease of epidemic tendency until 1806, when it appeared at Medfield, Mass., as a distinct epidemic, and continued to appear as such through all the New England States until 1816. From this period until 1860 casual endemics, with sporadic cases here and there, have occurred through all the Southern and Western States; also from 1814 to 1857 circumscribed epidemics appeared in various parts of Europe.

Dr. Woodward, of the U. S. Army, and Dr. E. S. Gaillard, of the Confederate Army, both report the existence of the disease in their respective armies during the entire war, subsiding and reappearing at intervals; and many civilians fell victims to the disease in those cities South at which troops were stationed. In 1849 it appeared in Spain; from 1854 to 1861 in Sweden; in 1863 and 1864 in West Prussia; in 1866 in Dublin; and latterly it has prevailed in all the States of the Union, from Maine to Texas, and from the Carolinas to the Pacific; but its extensiveness among any population has not been in accordance with its wide geographical range; most generally confining itself to circumscribed localities within any one place.

The morbid anatomy of cerebro-spinal meningitis, as described by

Upham, Tourdes, Stille, and Aitken, are opalescence of the upper surface of the cerebrum, vascularity of the membranes of the brain, chiefly of the pia mater, with a large increase of serum, mixed with flocculi of lymph, in the subarachnoid space and ventricles, with exudation of semi-coagulable lymph on base of brain, and medulla oblongata; a similar condition also exists in the spinal canal. These morbid appearances are found where death occurs a few days after inception of disease; when the disease has been of longer duration a cheese-like exudation is sometimes found, of some two or three lines in thickness, in close proximity to the meningeal vessels. In many of the cases reported the brain and spinal marrow have occasionally been implicated, the cerebrum having been found punctated and vascular, with both softening of it and cerebellum.

Mr. Rollet remarks, "that in those cases in which the substance of the brain is affected, there is a tendency to intermission, or at least remission, which alternates every three hours with an exacerbation;" this, though, he regards "as a characteristic symptom of the part affected, and not of malarial origin." In addition to the brain, spinal cord, and their membranes being the seat of disease, morbid changes from inflammation have been found in the alimentary canal, to which some pathologists have attached much importance, whilst others thought them merely accidental occurrences. Also the lungs, pleura, heart and its investments, have been involved during the progress of the disease. The heart has been found with its left side empty, and right filled with large fibrinous clots. "The blood during life, when drawn," according to Dr. Ames, of Alabama, "would form large loose coagula, in which all the red globules were rarely included, the serum separated slowly, and in small quantity; the color was in general bright; in a few cases approaching arterial blood," as per analysis of Mr. Tourdes. There was an increase of red globules and fibrin. The symptoms introductory to this disease are generally both formidable and sudden, being mostly ushered in by a severe chill followed by increased heat of surface, with pain in the head, extending down spine, with feelings of soreness or stiffness about the muscles of the neck, and again with heat of head, cold extremities, delirium, clonic spasm of limbs, flushed face, expressionless eye, with both dilated or contracted, or with one dilated, the opposite contracted, or occasionally the patient is attacked with double or triple vision, coma, more or less stupor, or again with pain in abdomen, accompanied by nausea and vomiting, cold bluish extremities, pulse thready. But whatever may be the initial symptoms, they are succeeded in a short time by clonic spasm or coma. I will just here narrate my observation of the symptoms of this disease as they appeared in two sporadic cases under my care in 1867 and 1868. Having kept but incomplete

memoranda regarding them, I can of course give but a rough outline.

The first was that of a child two years of age, in whom the development of the disease was gradual, having its beginning in a chill accompanied with nausea and vomiting, and crying as if in pain, followed by feverishness, succeeded in twenty-four hours by delirium, restlessness, and clonic spasm of the extremities; body cold, head hot, tongue white but moist, pulse 130. This condition continued for four days, when the child manifested signs of improvement in a returning appetite, an abatement of the febrile symptoms, discontinuance of spasm, etc. Paralysis of left side now became apparent, notwithstanding which it continued to convalesce, and seemingly was getting well, until eight months thereafter, when it died from softening of the brain. The other case was that of a boy, aged twelve years. Whilst playing, he suddenly fell as if attacked by apoplexy, remaining quiet and comatose for half an hour, followed by a constant muttering, and clonic spasm of limbs, with occasional tetanic of opisthotonus variety; jaws locked; skin at periods both dry and moist; bowels bound; temperature of body from 99° to 103° F. There was no eruption. Patient died in thirty-six hours. Constipation, cephalgia and rachialgia are almost constant symptoms, and require but a passing notice, being more or less severe in different cases. The pulse is but a poor guide in determining the nature or severity of an attack, being variable both in volume and frequency; but in the greater number of cases thready and weak, becoming intermittent in those assuming a fatal tendency. The temperature of the skin, as reported by Dr. Stille, varies between 100° and 105° F.

Dr. Charcot has made out the thermic periods for diseases of the cerebro-spinal axis, which, in my opinion, will be found to correspond more accurately with the facts in the case as the disease is presented to us this season. First, a rise to 100° F. from the normal standard. Second, oscillation between the normal temperature and 100° F. Third, a rapid rise to 105° F. and upwards, immediately before death.

As the eruption upon the body is by no means pathognomonic, and in fact I believe more frequently absent than present, I shall pay but little attention to it, merely mentioning that it may be from an ecchymosis to a pustular variety, and that when it does appear, it is generally within the first day or two. The duration of an attack may be from a few hours to several weeks, as deaths have been reported in as short a time as three hours. Should convalescence occur, the patient is susceptible of relapses, and many, painful and unpleasant sequelæ, of which paralysis, I believe, is the most serious. The mortality, as declared by Stille, Hirsch, and others, is from twenty-five to seventy-five per cent.,

the larger of which, I think, equals the percentage of losses sustained here, during its prevalence, since its inception at St. John's College in the latter part of the month of February. For instance, out of twenty-nine cases reported, we have had a fatal issue in twenty-one, with two cases undetermined (19th of April). The prognosis is therefore very unfavorable; especially is it so within the first five days.

As for the diagnosis of cerebro-spinal meningitis, the symptoms, even in the initial stage, all point to lesion of cerebro-spinal axis; so that in recollecting its physical diagnosis, we readily discover perversion of contractile discrimination, perversion of temperature, and structural perversion of the eye. Through this last much might be determined with the assistance of an ophthalmoscope. Now, with derangement of one or more of these conditions always apparent in any single case, it seems quite improbable that any one with good discriminating judgment should confound it with any other complaint. It has been likened unto typhus fever, but its diagnostic differences are many, and would occupy too much of our space to point them out.

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The cause is very plainly acknowledged by all as unknown, but presumed of course as some special disease agent, which does not convey contagion with its spread, possibly a something of a malarial character, as it is thought. Whatever it may be, it is of external influence; it is certainly neither heat nor cold, as the disease has appeared very nearly as often at one season of the year as at another.

In entering upon the treatment, it is with a feeling of regret and mortification that I have to assert its very unsatisfactory character. Many and numerous experiments have been made upon a scientific and empirical basis, without as yet evincing any special mode of treatment as preferable over another, and this I am fearful will continue to exist, until pathology, through the aid of analytical organic chemistry, discovers the morbid cause. But to the treatment: venesection is recommended in its beginning, where there is no prostration or coma. There is an article in the "Richmond and Louisville Medical Journal" for this month (April) where the author, in reporting a case, says he pushed the bleeding twice to syncope, removing from thirty-five to forty ounces at each sitting, and this at an interval of five hours. This case recovered (yet there were very few well-marked symptoms of the disease), and I presume in consequence he recommends the indiscriminate use of the lancet; but he assigns as a reason that the poison, whatever it may be, "acts as an irritant to the vaso-motor centre, producing contraction of the arteries and increased blood-pressure in the heart," and that the said

blood-letting "relieves congestion of lungs, liver, stomach, and hyperæmic meninges, and lastly a threatening paralysis of heart." If his theory is correct, that the *materies morbi* acts directly upon the vaso-motor centres, bleeding is certainly indicated; but I will venture to assert that his theory is based upon an erroneous conclusion. The condition of the organs as described by him are but sometimes complications in the treatment of the disease, or found to exist post-mortem. And again, why should the disease be more confined to the motor than the sensory system, when we consider the part affected? The symptoms do not warrant us in the belief that one is more involved than the other, except in a few special cases. In fact, blood-letting as an indiscriminate remedial agent would, in my opinion, inflict more injury than its benefit in a few cases could counterbalance.

The treatment, according to my judgment, when reasoning upon hypothetical grounds as to cause and effect, to accomplish most, would be by whatever means possible to equalize the circulation, eliminate the poison from the blood, where presumption locates it, and to nourish and support the system whilst Nature performs the balance. The first and somewhat the second of these indications are met in the administration of hot hip-baths two or three times in the course of twenty-four hours, continued daily, and to be followed in two or more hours after each one, with as little exposure of person as practicable, with stimulating embrocations to trunk of body and limbs; next, to apply counter-irritants, such as emplast. cantharides, collod. cum cantharides, or comp. tinct. iodine, to back of head, neck, and down spine; opening bowels soon after first seeing patient with a stimulating enema of castor oil, oil of turpentine, and assafœtida, to be continued daily, as the necessity for keeping them open may demand. The medicine I should give internally would be bromide of potass., in combination with opiates, sufficiently to keep the patient under a sedative influence, and whatever other influence the bromide might exert.

According to Dr. J. H. Bill, United States Army, this sedative effect is brought about in a decrease of carbonic acid gas eliminated through the lungs, and which is still retained in the blood, it being really the sedative, and not the salt; and furthermore, that it is not a physical action, but a vital cause that acts through its effect upon nervous influence, limited to mucous membrane of the lungs. In other words, that "bromide of potassium, in its legitimate action, is an anæsthetic to the nerves of the mucous membranes, and a depressor of their action, and that hypnotic effects are secondary."

Dr. B. W. Richardson's experiments resulted in his promulgating the belief that "bromide and its salts might be considered

a medicine, acting *primarily* upon the sympathetic or organic system of the nervous system," and as a modifier of vascular tension, and this whether applied locally and directly, or generally and indirectly. Now whether this sedative influence be appreciable through its action upon mucous membranes or attributable to its direct effect upon the brain, inasmuch as Dr. Bill further remarks, having partly proved by experiment and partly assumed its anaesthetic effect, when applied to the peripheral expansion of a nerve, says extend this inquiry: "If bromide changes cell nutrition, or produces anaesthesia in a nerve expansion, why not in ganglion, or ganglia? If it can prevent a nerve receiving or transmitting a sensation, why cannot it prevent the centres from appreciating and acting on the sensation; why cannot it reduce them to passivity—to sleep?" When we take these views of its sedative action in conjunction with its property of modifying vascular tension, lessening the active hyperæmia of the meningeal vessels resultant from an attack of this disease, do you not agree with me, that in combination with opium, which is claimed to possess so beneficial an influence, and promoting more cures than any other remedy, without any physiological reason to base its reputation upon, and only empiricism as a why or wherefore for its use, that probably the mortality in this dreadful disease might be lessened through its timely and judicious administration.

Dr. L. P. Yandell, Jr., mentions in an article upon the "Therapeutic Action of Bromide of Potassium," two sporadic cases cured by himself through its timely administration. He thinks the inefficiency of the drug in many cases is due to the insufficiency of the dose, or inadequate dilution by this last; he means, that instead of obtaining relief, you frequently induce great suffering through its irritant action on the stomach, as a small portion put upon the tongue and permitted to remain will induce soreness.

For the satisfaction of those gentlemen who may be advocates of the opium treatment exclusively, I will state that from experiments with the two combined, that rather than destroy the hypnotic or anodyne effect of the opiate, it heightens both, and more particularly the latter.

In pursuing the treatment to meet the third and last indication of support and nourishment of the system, it seems to me we should be very cautious in the use of stimulants, not though to their exclusion, but rely for the accomplishment of most good upon our dietary (milk and beef-tea). This last, if not tolerated by the stomach should be given by the rectum. If I thought stimulants were of use, I would prescribe egg-nogg, egg-flip, milk-punch, etc., etc.

And now, gentlemen, should my treatment have resulted in nothing more than the procurement of rest from struggling, and relief from pain, with time for Nature to endeavor to rid herself of the obnoxious cause, I have the satisfaction of knowing or believing I have mitigated the suffering of my patient, and given him the benefit of a somewhat scientific treatment.—*Richmond and Louisville Med. Jour.*

Membranous Formations on Mucous Surfaces. By FRANK A. RAMSEY, M.D., Memphis, Tennessee. (Read to the Clinical Society of Memphis, at its Session, Tuesday, April 30, 1872.)

Your attention, gentlemen, having been completely filled at the last session of the Clinical Society, by a member exhaustively considering the subject of pleuritic effusion, it seems to me to be somewhat in keeping, and opportune, to present to you a membranous-like formation, that was dejected by a patient at present under my professional administration, and to make it the occasion of some remarks. I can only regret the inability of your present reporter to give his subject the same clearness in expose and completeness in detail that so recently attached here to the subject with which I have assumed it to have some connection.

Serous effusions, resulting from inflammation, are much more common than membranous formations on mucous surfaces, resulting from inflammation. They probably, however, each indicate life-power perverted in the direction of depression. In inflammation of the serous tissues, except the life-force is inadequate, proliferation and adhesion occur; if inadequate, proliferation and capillary emission of fluid succeed. In mucous inflammation, except the life-force is inadequate, the exhaling or proper vessels of the surface, and the mucous follicles, pour out fluids; and if inadequate, a coagulable albuminous matter is furnished, and concretes in the form of a false membrane on the surface that produced it. Properly minute examination exposes the fact that such formations do not have any trace of fibres, laminæ, canals or areolæ, and hence are said to be apparently organized, and dependent upon the adjacent tissues for that vitality, though there are respectable investigators who affirm organization, of admitted low degree, to be established in the occurrence of concretion in the form of membrane.

The specimen which I present to you, when dejected, was regularly cylindrical, and preserved that shape through several

successive pourings of water upon it, and until it had been for a considerable time in the vial that now contains it, and in which it has been subjected to shaking by those who have examined it curiously. It was passed by an educated female, who lives in an easy pecuniary condition, with pleasant social surroundings, and in happy domestic relationships. She is forty years of age, and has been delivered at full term of half a dozen children; perineal rupture occurred at first labor. She says that for seventeen years she has never known a moment that she was free from pain. Pain is not now, and I cannot learn that it ever was, fixed. Of course she is hysterical, multitudinously so; but, withal, she is reasonable, and is abundantly profuse in acknowledging the leniency and patience of her husband, family, and acquaintances, with her variableness of temper and deportment, and constant complainings.

For many years she has taken food more from a sense of duty than from desire, and without relish—always but little at a time, and in the aggregate not enough to accomplish more than just to prevent her from dying by starvation. She is anaemic. She was the subject of corporal metritis, with uterine hemorrhage—for which she was treated by appliances to the affected part, so judiciously selected and skillfully administered as to have effected restitution locally to the fullest degree permitted by the depraved condition of her whole economy. She now menstruates regularly; and for a few days before, and for a few days after the eruption, she has profuse leucorrhœa, which, though it is constant, is much less abundant at other times, and than formerly. She has had, and has, hemorrhoids and rectitis. This last, occasionally, is very positive; the sub-acute or chronic action, at such times, judging by local and general symptoms, is intensified. She has had, and recently, fissured anus; and all the while has given evidence of the existence of a catarrhal condition of the bowel. Ordinarily, constipation prevails; but she has presented occasions when treatment for diarrhoea and for dysentery was necessary. She is relatively sleepless, and is always anxious for company, and when she has it, is exceedingly voluble, and seemingly felicitous; but when alone, she is depressed in spirits, and profoundly so on the approach of, during, and immediately after, menstruation.

She had been confined to bed for seven weeks when I made my first call, and during that time she took regularly, every night, fifteen or twenty grains of chloral, contrary to the advice of her physician, by whom it had been at first necessarily given, because of the inadequacy of other agents to occasion sleep. During these weeks, she complained all the time of a burning in the rectum, and frequently mentioned that she had passed shreds of her bowel, and at such times affirmed that the burning,

though not destroyed, was modified, until ultimately the shreds, at one stool, were passed in heavy quantity, and with them several inches of the same membranous substance, but in a well-formed cylindrical shape, and immediately the burning sensation ceased, and has not yet, again, troubled her. Under a strict observance of the advice not to take any nervous medicaments except whisky, and a systematized administration of nutrients at short intervals and at designated moments, she has improved in strength, and has accreted tissue, but is yet very far from having attained a condition of health.

There have been, relatively, but few observers who have made record of the passage of pseudo-membranes from the bowels; but the few are uniform in affirming it to have occurred only in instances of prolonged ailment, and, almost without exception, in female patients. They concur, too, in symptomatology—representing the bowels as irregular in action, either too relaxed or too costive; and after intervals of greater or less duration, simple uneasiness, curiously located pains and sensations, or sometimes even violent colic, will be felt; and under the operation of a purgative agent, or a spontaneous laxness of the bowels, the stools contain portions of the false membrane, which continue to be voided for several days. The shreds vary in size, and occasionally form into complete tubes of considerable length, and there is marked subsidence of symptoms, which do not recur until the morbid formation is again developed and begins to be detached. These are described as occasionally white and soft, and sometimes yellowish, consistent, and even elastic; and are said to be produced in any part of the intestinal canal, or in both the small and large bowels at the same time. Instances are on record in which the membrane was discharged from the uterus and the vagina almost contemporaneous with its discharge from the bowels.

These membranous formations upon the mucous surface of the intestines were considered by Dr. Powell, who first described them, to have been formed in a similar manner to those observed in croup, and, in a few instances, in bronchitis. They are said to occur with much greater frequency in the mouth, pharynx, and œsophagus, than at other points, and present then in the form of whitish-flocculent or thin membranous-like patches and shreds, covering the inflamed surface, occurring in the course of severe or protracted febrile disorders, particularly so in scarlet fever, and are the characteristic attendants of an epidemical scourge with which we are all familiar.

The constitutional debility and depression of spirits connected with protracted ailment are especially concerned in occasioning the peculiar condition of the vessels and tissue involved in the production of this matter; and the occurrence of it in the course

of more rapid affections, is indicative of a peculiar failure of life-power. This is the clinical interest that attaches to the formation of membranes on mucous surfaces under any circumstances; the life-power is depressed—the vital force, whatever that is, impaired, and clearly pointing to the necessity of such agents as will do most, under the circumstances of individual cases, toward putting the channels and instruments of its play in a condition conducive to the exercise of its proper power. These agents cannot be definitely determined, except by the judgment of the practitioner when exercised upon an individual case. If any circumstance prevails that readily, or upon investigation, is demonstrable as contributing to debility, though it may have no other manifestation than the membranous formation, that circumstance ought to be destroyed, or the patient ought to be relieved of its influence. If sleeplessness prevail, sleep ought to be, if possible, induced; but if the means employed for that end become contributing sources to the debility, they ought to be put away—for in administering, we must always keep in mind, that agents possessed of curative power may be potent causes of disease.

When the membranous formation is enteric, it becomes a point of some delicacy to determine the propriety of giving the patients purgative medicaments. In inflammation of the stomach and in inflammation of the bowels, separately or together, when acute, reason and observation concur in condemning resort to any agent at all capable of disturbing the rest which we desire the tissues to have. But in some instances, the presence of hard fecal matter is promotive of the diseased action of the vessels and tissues with which it is in contact, and the practitioner must decide a question that inevitably will arise in every case, whether acute, sub-acute, or chronic, of inflammation of the first passages.

In the case reported here, an occasional purge has been found to be absolutely necessary. Each time of administration has been the occasion of some one or another intensified symptom—has been of temporary disadvantage; but subsequently, perhaps, the condition of the patient has been improved by the purgative action.

One point more, and I am done. Notwithstanding the fact that depression of life-power is indexed by the occurrence of pseudo-membranes on mucous surfaces, there are occasions when its appearance may be hailed as evidencing a return, in successive steps, of the tissues to the normal or healthy condition.

Sanderson, in his remarks appended to Simon's treatise on the subject, in Holmes' Surgery, gives us to understand, that amongst the first phenomena in inflammation, is the return of the involved tissue from a state formed, to a plastic, or forming

condition, and so on successively until the end in the particular instance; and that, in the final attainment of health, these steps are passed in reversed succession. I refer to this teaching to sustain me in the clinical position I have just taken—to sustain me in sometimes regarding the appearance of pseudo-membranes on mucous surfaces as sufficient to essentially mollify an otherwise very unfavorable opinion of a case of disease in progress. I could cite instances to support me that have occurred to myself in practice, but I prefer one that is on record, and that can be consulted by any one who may elect to give the point consideration.

In the April number, 1868, of the *New Orleans Journal of Medicine*, is recorded "Observations on Diphtheria," by Dr. H. D. Schmidt, of that city. The observations are based upon one case of diphtheritic membrane, occurring under circumstances that fit it for my purpose here.

The patient was a girl, æt. seven years, living under cosmic circumstances of the most deleterious kind, in a hot climate, on a ridge surrounded by marshy lands and bogs, and very near a particular bayou, the water of which has a closer analogy to the liquid of a cess-pool than to the water from an inlet to the ocean. The patient first sickened with yellow fever, from which she recovered in a little more than a week, terminating about the 12th of September. On the 30th of October, she was again placed under the observation of the practitioner of medicine, having been subject to repeated attacks of chill and fever for a week, and now had very high fever, though her appearance was very pale and anaemic, and she was troubled with cough. During the next ten days, fever of remittent type prevailed with her; she had moist, yellowish-white-furred and slightly swollen tongue; cough; loose bowels, easily checked by bismuth, mucilage and paregoric; pain in epigastric region, below the sternum and extending to hypochondrium, that was relieved by a small blister over her chest; very much disposition to sleep. No improvement for four days, when, at a morning visit, the tongue was dry, covered with a yellowish-brown scab, and had several fissures; purplish gums, slightly tumid, sordes; feeble pulse, about one hundred to the minute; no epigastric, but umbilical pain, and swollen and tympanitic abdomen. Typhoid fever now diagnosed. Oil of turpentine, with camphor, was administered, and was followed, as observed next morning, with moist tongue, a little swollen, and covered with a white, pus-like secretion, with a smooth surface beneath it. This was regarded as favorable, though the disposition to sleep, and apathy, were marked, and tympanitis was positive, and abdominal pain was increased, and diarrhoea was active, and cough was troublesome.

About the second day after the tongue had become moist, a

white exudate appeared back upon the hard palate, near the place where it is joined to the soft palate. From here it spread, in the course of a few days, over the whole mucous membrane of the oral cavity, including the fauces, and to the very edge of the lips; from the lips to the posterior arches, there was no place free from it, except the margin of the gums. The observer here says: "The disease had now thrown off its last mask, and stood there in the form of diphtheria." For a week, every typhoid symptom intensified, and before the end, rheumatism and hemorrhage occurred, and the urine contained albumen. During the passing of time, the exudate, under applications, became gradually loosened at points, so that it could be taken away in patches; but while this happened in one place, it extended in another.

From the first, supporting diet had been given, and under the use of chlorate of potassæ, the stupor disappeared in the most striking manner, the change in the cerebral functions being next to the occurrence of false membrane as an indication of favorable progress. Other typhoid symptoms continued until impacted faeces were removed under the action of a purgative agent; and then the progress of the case was onward, until the patient enjoyed better health than she had ever done.—*Atlanta Med. and Surg. Journal.*

The Science of Meteorology—Its Utility—The Necessary Instruments, and How to Use Them. By MR. THOMAS D. KING, Montreal.

It cannot have escaped the attention of those whose acquirements enable them to judge, and who have the opportunities of examining the state of Meteorological Science in England and the United States, that in Canada, more particularly in the Province of Quebec, with respect to the simplest weather reports, the amount of rain-fall and the multitude of causes by which the atmosphere is influenced either for the benefit or destruction of animal and vegetable life, we are almost in a state of ignorance.

That a city like Montreal, eminently distinguished for its commerce, for its manufactories, and for its philanthropy, should be indifferent to the progress of inquiries which are so necessary; and that the medical faculty should be dependent upon the observations of persons whose reports are published at their own discretion, is a fact which is well deserving the attention of those who shall inquire into the causes that influence the scientific progress of the neighboring States. In them are Observatories and Scientific Institutions founded and endowed by private citizens.

and supplemented by grants from Congress, for the discovery of new truths, and for the diffusion of these among men. There is also a large staff of private observers, as well as those belonging to the U. S. Army Corps, in all many hundreds, who contribute to Meteorological Science, serving to place in a clear point of view, the connection of climate with the natural productions of different parts of the earth.

That the state of knowledge in any country will exert a directive influence on the general system of instruction adopted in it, is a principle too obvious to require investigation. And it is equally certain that the tastes and pursuits of our manhood will bear on them the traces of the earlier impressions of our education. It is not therefore unreasonable to suppose that the neglect of science, we may almost say, the utter neglect of science, in the Province of Quebec, may be attributed to the system of education we pursue.

Young men pass away from our Public Schools, Colleges, and Universities, ignorant almost of every branch of useful knowledge, more particularly of the application of science to Arts and Manufactures. Our system of education may be attributed in some measure to the fact that amongst the wealthy and middle classes, scientific knowledge scarcely exists. Those who have chosen the profession of medicine, may have a slight knowledge of Chemistry, Zoology, Botany, Vegetable Physiology, and Mineralogy, but they rarely possess a knowledge of those physical laws which brought forth a Dalton, a Davy, a Faraday—nevertheless, there is a knowledge which they ought to possess, viz.: The peculiarities of the atmosphere which affect the functions of organized bodies. It would be productive of useful results, if physicians of extensive practice, more particularly those attached to our Infirmaries and Hospitals, would make accurate meteorological registers, especially during the prevalence of any epidemic or contagious disorders; not that it must be considered that atmospheric peculiarities alone produce epidemic and other complaints, which must be regarded as having a compound origin, and as resulting from the operation of peculiar states of atmosphere on persons of particular states of constitution; otherwise all persons would be affected, which is contrary to experience. Of this there can be no doubt, that the effect of atmospheric changes upon ordinary diseases requires more attention from medical men than it has hitherto received.

My object is not to write a treatise on meteorology; that task has been done by many able men. Those who have the leisure to go deeply into the subject, and wish to become acquainted with scientific meteorology, will find that the following works exhaust the topic, viz.:

Luke Howard, "Climate of London."
Daniell, "Meteorological Essays."

- Kaemtz, " Meteorology."
Drew, " Practical Meteorology."
Glaisher, " Hygrometrical Tables."
James, " Instructions for Taking Meteorological Observations."
Fitz-roy, " Weather Book."
Proceedings of the Meteorological Society.
Journal of the Scottish Meteorological Society.
Symons, " British Rain-fall," and " Meteorological Magazine."
Steinmetz, " Manual of Weathercasts" and " Sunshine and Showers."
Smithsonian Institution Publications.

" Directions for Meteorological Observations and the Registry of Periodical Phenomena."

" Tables, Meteorological and Physical," prepared by Arnold Guyot, Professor of Geology and Physical Geography, College of New Jersey.

To the pages of some of these I am indebted chiefly for the few concluding remarks I shall deem necessary to make. The subject is an important one, and at the same time for all practical purposes very simple. It requires no overwhelming attention; the observer does not require to be well acquainted with mathematics or astronomy; he does not require, like some ambitious of scientific distinction, to have attached to his name a kind of comet, carrying with it a tail of letters, such as LL.D., D.C.L., F.R.S., F.M.B.S., F.L.S., etc.; the observations demand no unrivaled accuracy, but mere ordinary care, such as would be required by a schoolboy in a common sum of vulgar fractions.

My object is not to satisfy the requisitions of Science, but to induce those who have not hitherto paid any attention to the subject to do so at once, and to form, if possible, in the Province of Quebec, a Meteorological Society, for the purpose of collecting observations on the weather, the amount of rain-fall, and the registry of periodical phenomena which can be published monthly in this journal.

To the readers of this journal it is not necessary to say that an acquaintance with the science of Meteorology, together with the observance of instrumental and natural signs of the changes and conditions of the atmosphere about us, enable the formation of a foreknowledge of the kind of weather, as of storms, excess of heat or cold, drought or rain. To seamen, fishermen, farmers, gardeners, builders, engineers, travelers, more than the generality of people, such foreknowledge is of great value, on account of their pursuits being greatly affected by changes in the weather. Indeed, the personal safety and comfort of everybody, in a greater or less degree, must be promoted by the ability to prognosticate the extremes of the weather.

It is now well known that variations in the intensity and dura-

tion of sunshine, the exposure to humidity, and the amount and frequency of rain and snow, have highly important influences upon the development and growth of crops. A farmer would, therefore, undoubtedly acquire increased experience and knowledge of the varied operations of his calling if he were to register weather observations upon a simple, but uniform plan, noting all the signs afforded by nature. The blights which affect vegetation, such as the mildew and smut of wheat; the fungus, which attacks the vine; the fly, which destroys the hop and the turnip, may all be dependent upon atmospheric conditions, which attentive observations may detect.

It will now be necessary to say a few words about

METEOROLOGICAL INSTRUMENTS, AND HOW TO USE THEM.

The instruments absolutely required for prognosticating the weather, are few in number, and such as need very little practice to secure accurate and useful information. Meteorological investigators must be cautioned against the so-called "cheap" instruments paraded in the shops, as utterly useless and likely to disgust them with the science. It is certain that no one need be without good, reliable instruments on account of the cost. The best instrument-makers in England seem all anxious to meet the views of those who wish to devote a portion of their time to the development of meteorology; and one of them, Mr. Pastorelli, of Piccadilly, London, has designed a complete set of instruments at a very moderate cost, the barometer having been examined by Mr. Glaisher, of the Greenwich Observatory, the well-known meteorological authority, and certified to read correctly to .01 or .02 with the standard, and the remainder of the instruments verified at the Observatory of Greenwich.

A set of the out-of-door instruments, fixed on a neat stand, would form an ornament to any lawn or grass plot near the house, and one of our daughters or sons might undertake the daily inspection of the instruments and keep the register of the weather. Fathers of families have thus the means of introducing into their homes a new feature of interest, and even of utility; for there would thus be in every family a reliable weather-prophet, whose timely advice might prevent exposure to many a drenching, and to the damage and health of garments. Excursions would not, if the Barometer and Hygrometer were consulted, be undertaken in the utter uncertainty as to the weather that is likely to attend them. Besides, it is no small satisfaction to be able to know when we are likely to need umbrellas, and when we may leave the encumbrance at home although the sky be overcast and cloudy. This degree of certainty is within the reach of all of us, with the aid of the requisite instruments.

In all public schools such a set of instruments should form part

of the daily study; and we have no doubt that our young ones would take to it as kindly as to any other pursuit likely to excite their natural curiosity.

I shall now proceed to notice succinctly the various instruments required in the investigation of the weather.

THE BAROMETER.

This instrument indicates the changes in the weight, or rather the elasticity of the air; the more elastic the air, the finer the weather, and the higher the barometer. The elasticity of the air being diminished, the barometer falls proportionately to the disturbance causing bad weather.

In fixing the barometer, select a position commanding a good light, but not exposed to sunshine, and adjust the tube to a vertical position by means of a plumb-line. Before reading the instrument, tap it gently a few times, as the mercury is apt to adhere to the tube. In reading, let the eye be placed on the exact level of the mercurial column, so that the eye, the back and forepart of the index, and the top of the column, be in the same horizontal plane.

In forming a judgment of forthcoming weather, the point at which the mercury stands should not be so much regarded as whether it is rising or falling; and much consideration should habitually be given to its movements during the previous two or three days. Different latitudes and elevations above the sea have their peculiar *par-line*, or average height of the barometric column.

The varying pressure or elasticity of the air, as shown by the barometer's rise and fall, must have some specific influence on the public health, the *fall* being attended with aggravation or production of diseases of an inflammatory or haemorrhagic character, the rise producing or aggravating those of a plethoric character, such as pulmonary and cerebral apoplexy, congestive bronchitis, etc. On the other hand, increased atmospheric pressure exercises a sedative influence on the respiration and pulse, diminishing the frequency, but generally increasing the force of both. The lungs are more fully expanded, the blood is more completely oxygenated, and the nervous and digestive organs acquire increased vigor—as forcibly shown by the vigor of our "jolly tars," whose life is passed "on the ocean wave" or "the sea-level."

THE THERMOMETER.

The intelligent observation of the thermometer should always accompany that of the barometer.

The thermometer should be placed so as to be freely exposed to the surrounding air, and protected from the effects of reflected heat, radiation, and rain. The instruments should always be read when we read the barometer.

DRY BULB THERMOMETER.

This and all out-door thermometers should be read to tenths of degrees; it is very easy to estimate these parts of a degree. Always look square at a thermometer, or you will read it too high or too low; read it as quickly as practicable, and don't breathe upon it.

WET BULB THERMOMETER.

Muslin to be kept clean, changed every month or so. The water used should be either clean rain or distilled. Hard water deposits salts on the bulb and hardens the muslin. In frosty weather the bulb should be wetted with water at about 45 degrees, fifteen minutes before observing.

MAXIMUM THERMOMETER.

Whether this be constructed on the plan patented by Negretti or on that of Professor Phillips, it is to be used in a horizontal position ; the reading of the end of the column furthest from the bulb is the maximum, and the instrument is reset by lowering the bulb end; sometimes they require a more or less smart shake—of course, gentle means should be tried first.

MINIMUM THERMOMETER.

There is at present nothing better than Pastorelli's spirit thermometer for general use; the position of the end of the index furthest from the bulb is the reading to be entered, and the instrument is to be set by raising the bulb so that the index may fall to the end of the column.

Thermometers should be constructed so as to be without errors, or to have errors less than 0.5 of a degree, which may be neglected for ordinary purposes, and applied when using the observations for scientific purposes.

HYGROMETER, OR DRY AND WET BULB THERMOMETER.

The bulb of the wet thermometer is covered with thin muslin, round the neck of which is twisted a conducting thread of lampwick, common darning cotton, or floss silk; this passes into an adjacent vessel of water placed at such a distance as to allow a length of conducting thread of about three inches. The cup or glass should be placed on one side and a little beneath, so that the water within may not affect the reading of the dry bulb by its too near vicinity.

The importance of this instrument to the requirements of a sick chamber are scarcely to be over-rated, and will be at once obvious to all who know that the comfort of the patient is dependent not so much on the temperature, as on the hygrometric condition of the air. In our long winters the air of the apartment when heated with stoves, is not unfrequently too dry, in which

case the difference between the readings of the two thermometers will be great, and this condition will be manifest to the sufferer by the degree of inconvenience he will experience attributable to this cause. If the air be moist, the difference between the readings will be less in proportion to the degree of moisture; and if the air be saturated, the readings will be alike. *It would be well for the medical profession to enforce, as far as lies in its power, the use of this simple and effectual instrument, which at all times is valuable with reference to the record of external temperature, as well as hygrometric conditions of the air, and which in case of sickness gives indications so important to the comfort and convalescence of the patient.*

If the hygrometer shows increasing dampness by the difference of the readings becoming smaller, then rain may be expected; but if the hygrometer shows continuing or increasing dryness, by the reverse, then we may expect more wind, without rain.

The dryness or humidity of the air has the greatest influence on the development of diseases, and therefore this instrument should be the test of the climate of places to which invalids are sent for the recovery of health. In the open sea the air seems to be in a state of saturation, and the quantity of vapor is greatest on coasts, diminishing as we approach the interior.

The hygrometer should be in universal use in our changeable climate, not only during hay-making and the all-important time of harvest, but also to do away with the many doubts about the weather from the mere appearances of the sky, causing the great inconvenience of carrying umbrellas, when not likely to be required.

RAIN GAUGE.

This instrument informs us of the quantity of rain that has fallen at any given time. There is a great variety of forms, but perhaps the best and the simplest is Howard's Rain Gauge.

The rain-fall throughout Canada is very varied in its amount in different localities, depending upon the peculiar features of the country.

The following table shows the equivalent of rain in inches, its weight per acre, and bulk in gallons:

| | | | | | | | | | | |
|------------------------|------|------|------|------|-------|-------|-------|-------|-------|-------|
| Inches of rain..... | 0·1 | 0·2 | 0·3 | 0·4 | 0·5 | 0·6 | 0·7 | 0·8 | 0·9 | 1 in. |
| Tons, per acre..... | 10 | 20 | 30 | 40 | 50 | 61 | 71 | 81 | 91 | 101 |
| Gallons, per acre..... | 2262 | 4525 | 6787 | 9049 | 11312 | 13574 | 15836 | 18098 | 20361 | 22623 |

The following fact will give some idea of the quantity of rain that falls in showers, and the amount of human labor by hand-irrigation that would be required for an equivalent. Suppose a flower garden 22 yards square (a tenth of an acre,) how many cans of water are required to equal *half an inch* of rain—a very moderate amount for a thunder-shower?

If the can holds four gallons (i.e. 40 lbs.) of water, it will require to be filled 282 times, or, to put it in weight, 5 tons of water would have to be supplied.

WIND DIRECTION.

Observers should not rely upon weathercocks for the direction of the wind. It is better to watch the way clouds are drifting; they are steadier in their course than vanes, flags, streamers, or even smoke, driven by the surface wind. Moreover, weathercocks are sometimes set incorrectly; either the variation of the compass has not been allowed for, or it has been applied the wrong way.

The meteorological instruments required for ordinary observations in the pursuit of weather wisdom are few:—Barometer, Hygrometer, Self-Registering Thermometers, Rain Gauge.

A little practice will render the duty quite easy, and enable the observer ere long to judge for himself concerning coming weather. To doubt that science of weather is possible, would be to doubt that atmospheric disturbances are governed by fixed laws. But, indeed, a wonderful change has taken place in this respect of late years. Formerly most savans scoffed at the idea of predicting the weather; and Arago, the French astronomer, said that no scientific man, anxious for his reputation, would venture upon such a thing even for the space of a single day. But now it is just the reverse; those most acquainted with meteorology are the staunchest believers in the ultimate probability of "doing the thing" to the world's great satisfaction. Indeed, had one-half of the time and research devoted to sidereal astronomy been spent in observing and registering changes which any one may notice, but which no one has yet succeeded in predicting or interpreting, meteorology would not be still "in its infancy" after a birth thousands of years ago, nay, coeval with the first appearance of man upon earth, to observe "the signs which are in the firmament of the heavens."—*Canada Med. & Surg. Journal.*

Hydrophobia. A Lecture delivered at the Medical College of the Pacific. By Prof. JOHN C. DALTON, M.D., of New York.
(Reported by Henry Gibbons, Jr., M.D.)

The study of hydrophobia is invested with unusual interest from several circumstances. First, from its communicability; second, from its extraordinary, probably universal, fatality, there being no authentic case of recovery; and lastly, from the terrible character of its symptoms.

It is an extremely rare disease. Many practitioners have never

seen a case; and yet it does recur with tolerable regularity. During the six years from 1862 to 1867, inclusive, a hundred and seven cases occurred in France. Taking the average population of that country as thirty-six millions, this would give one case every two years for each million of inhabitants. But the disease prevails to a greater extent in cities, for obvious reasons. The denser population of the city brings the rabid animal in almost certain contact with many persons, while in the country he may die before meeting any one to bite. Again, the statistics of cities are more accurate. In the department of the Seine, including Paris, the population averaging one million, there was, for the twenty years from 1842 to 1862, an average of two and one-third cases in each year. In New York, for the six years from 1866 to 1871, there were twenty-two cases, an average of two and two-thirds each year. Taking all these statistics together, we judge that we have, generally speaking, three cases of hydrophobia a year to every million of people.

Another point of great interest is the frequency with which hydrophobia follows the bite of the animal. In the neighborhood of Paris is the Veterinary School of Alfort, where this subject has been fully investigated. It was found that of dogs bitten by rabid dogs, but one in three becomes rabid. In the human race the proportion is much less. John Hunter estimated it at only one in twenty-one. This has been considered far too low; but it has received singular confirmation in the investigations made at the veterinary school of Alfort. In the Department of the Seine, a hundred cases of hydrophobia in dogs occur annually. It was found that of twenty-five of these, ten only bit persons, and these ten bit fifteen persons. At this same rate the hundred dogs would have bitten sixty persons. But we have already seen that only between two and three cases of hydrophobia in man occur annually, hence we arrive at almost the same result as Hunter.

The less susceptibility of man to hydrophobia is owing to a variety of causes. Man is undoubtedly less susceptible to the poison. Besides, there are a great many physical causes operating. It is not the bite, but the saliva that poisons. If a man be bitten, it is usually through the clothing, or the boot, and the saliva is wiped off, or should the saliva touch the wound, it is often removed by the action of the person, by squeezing or washing or rubbing the wound, or if there be much bleeding, the blood may wash away the poison before it has had time to be absorbed. But if absorption have taken place, it is absolutely certain to produce death.

Now in regard to the signs which follow a bite. There are no immediate signs. The mad dog does not display any ferocity. It may be a chance bite, a snapping of the jaws without the intention of biting, that brings the poison in contact with the raw surface. Indeed, the dog may not bite at all, but the saliva touch a wound,

or abrasion or sore already existing. The bite is generally not large, and heals well. Then comes the period of incubation, such as occurs in small-pox, measles and scarlatina. The person is inoculated, but the poison is not yet diffused over the system. This period of incubation varies. It is rarely less than a month; it is often delayed to two or three, and may extend to the end of the sixth month; and there have been cases in which the disease has not exhibited itself until a year has elapsed. There are stories of longer periods, even to eight years; but these are incredible, particularly as during that time there are so many chances that another bite may have been received. There are then no symptoms for a month. Each succeeding week of exemption after the month has elapsed diminishes the liability. At three months the patient is probably safe; at six months almost certainly so; but what weeks of extreme anxiety must he experience before the danger is past!

If hydrophobia is about to occur, there is generally slight irritation about the wound; an itching, possibly swelling, with red lines extending therefrom; but this is not always the case. Next follows stiffness of the neck; then febrile action, with loss of appetite, succeeded by difficulty in moving the jaw and difficult deglutition; then occurs a most remarkable symptom—a vague and unaccountable anxiety, not of any special thing, and quite unexplainable. After from six to twelve hours, this amounts to delirium. Finally, hallucinations occur, and the friends are obliged to restrain the patient by force. This necessity for restraint has given rise to the popular idea that hydrophobia induces a tendency to attack persons. It is, however, entirely erroneous. Another symptom has given rise to the popular impression that there is a great dread of water; hence, indeed, the name of the disease. But this is equally erroneous. There is great difficulty in swallowing, whether water or other things. An attempt to do so brings on convulsive constriction of the glottis, accompanied by great pain and distress, which any one who has inhaled chlorine in the laboratory has experienced. In this respect hydrophobia is very similar to tetanus. In that disease, a breath of air, the moving of the bed clothing, or some such slight circumstance, will cause sudden reflex convulsions of opisthotonus. So with swallowing in hydrophobia. After repeated trials, so painful, he gives up in despair; he throws the water from him and will not again attempt to swallow. When this condition is reached, the patient has not long to live. He dies of extreme nervous depression and exhaustion, generally in forty-eight hours, though he may live three days.

What treatment can be instituted in these cases? Of course you will think of opium, of chloroform, and other narcotics. They are useless. There is only one thing to be done, and that at the very first: Cauterize. Some have recommended to cut out the

wound first and then cauterize. I do not see the use of this. We cannot tell the depth of the wound. We cannot be sure of preventing the knife from cutting into the bitten portion, in which event every movement of it would carry the poison farther. Use the caustic freely. Lunar caustic is the best, being more readily obtainable than any other; and its stick form renders it easy of application. Apply it thoroughly until every portion of the wound has lost its sensibility. Generally speaking, if this is done early enough, it is efficacious.

But there is something of a great deal more importance than this. Barbarous as it may appear, it is not so important to save life as it is to prevent a dog with hydrophobia from being at large, with the probability of his biting.

Although the proportion of those who have hydrophobia to those bitten is so small, I do not know that the majority of those bitten would not prefer speedy death to the terrible anxiety of uncertainty. But how shall biting be prevented? Only know that the dog is mad. Fatal bites result because the disease is not recognized. To distinguish hydrophobia in the dog is vastly more important than to distinguish it in man, and there are signs by which it may be distinguished before the tendency to bite is exhibited.

Now of the signs of hydrophobia in the dog. I presume that ninety-nine of every hundred, perhaps nine hundred and ninety-nine of every thousand, think that dogs get mad only in hot weather—never in cold—and that they have a horror of water. This is not true. The disease is no more prevalent in hot than in cold weather. Dogs have no horror of water, but being feverish, drink frequently. The symptoms in the dog have been fully studied at Alfort. He first gives evidence of being sick, loses his appetite, refuses food, skulks out of sight, avoids his companions and playfellows, and hides in dark corners. Now, as hydrophobia is so dangerous a disease, a dog showing signs of sickness should be watched. Whatever the nature of the sickness may be, however, a dog will always act in this way. These symptoms are not pathognomonic. But there is another symptom which, if it occur in connection with these, is very suggestive. It is a peculiar agitation. The dog with hydrophobia does not lie in one corner ten minutes together. He is not satisfied to remain in one locality. Should his master call him he goes to him, but quickly returns to a corner. If he has a kennel he runs into it. He piles the straw up in the middle of the kennel and lies upon it. In a few moments more he jumps up and pushes all the straw out on the ground. These are extremely suspicious circumstances, and call for careful confinement of the dog.

Next, the dog has hallucinations. All at once in changing his position he stops, pricks up his ears, and seems to hear something. This is but momentary. Again, he appears to hear some other dog

on the opposite side of a wall or a door, and scratches to get to him. He snaps at imaginary flies. Now is surely the time to place him in confinement. Up to this period he has shown no disposition to bite. It must be borne in mind that when sick, the natural disposition of the dog remains. If he be naturally excitable and aggressive, he will be more apt to bite. He will be more apt to bite a stranger or a beggar than one of the family, or his master. Indeed, he will not bite his master, unless driven too far. He will even come, though reluctantly, at his master's call, and will perhaps receive a whip or two before his unusual excitability overcomes his habitual control and induces him to bite. All this time the hydrophobic dog will drink. He will take more water than usual; his apparent repugnance to it never being so strong as in the human subject.

The next symptom is a depraved and unnatural appetite, exhibited by biting furniture, knawing curtains or the carpet, swallowing bits of wood, coal, brick, even his own dung. This adds much to the belief that he has hydrophobia. All know that some pet dogs have a habit of knawing books, but hydrophobic dogs, having no such habits, do the same, and, besides, swallow what they knaw off.

We have, then, agitation and extreme restlessness, hallucinations, and depraved appetite, as symptoms of the approach of the dangerous stage of hydrophobia. The following incident will illustrate the importance of distinguishing the disease at this early stage, and the value of these symptoms: Two ladies, with the little daughter of one of them, lived together. They had a little pet dog, which became ill, and hiring a carriage they drove out to Alfort to consult the veterinary surgeon. It was after visiting hours, and not being able to see him, they returned the next day. The surgeon was now able to decide at once, from their account, that the dog had hydrophobia. He learned that the dog had developed a disposition to tear the curtains, and had not slept during the whole night, but was heard pattering over the floor. Unfortunately, in the interval between the two visits, he had bitten the little girl.

When a member of a family is supposed to have been bitten by a rabid dog, it is the habit to kill the dog at once. This is all wrong. The only means of deciding whether the supposition is correct is thus destroyed. It is well known that the house-dog is prone to epilepsy. If in the paroxysm he may have accidentally bitten or appeared to snap at some one, let him be confined and watched for a few days.

The fourth symptom is a peculiar bark. I have never heard it. It does not always occur, but when it does exist, is considered a very valuable symptom. It is very difficult to describe, but is spoken of as a loud, quick bark, followed by a series of diminishing howls.

The fifth symptom is insalivation, in regard to which a misconception has arisen. There is no great abundance of saliva, but it is peculiar in quality. It is very viscid, and hangs down in strings from the mouth, giving to the human and the dog an appearance of peculiar and unaccountable distress. The dog appears to be annoyed beyond expression, and makes every effort to remove the viscid strings of saliva with his paws. These efforts have occasionally given rise to the idea that a bone or piece of wood is lodged in the teeth or throat, and in one instance a veterinary surgeon, in making an examination, was bitten.

Now the aggressive disposition begins to show itself. The insane desire to bite is first excited by animals of its own species. Next, the dog attacks man, but even now discriminates in favor of its master and friends. A stranger or some one coming to the door is attacked. Now that the disease is fully established, the dog disappears from home, probably with the idea of seeking a deserted place and withdrawing from observation. But new and greater sources of irritation meet him at every step. The noise of carts and horses and of people increases his excitability. If he should escape death and succeed in reaching the fields, he reels along from side to side, snapping at anything and nothing, until finally paralysis occurs, and he lies on the side of the road, to die in a few hours, if not sooner killed by his pursuers. Sometimes, finding no rest or escape, he goes back to his master's house. But he has undergone an extraordinary change in appearance. He is draggled, and dusty, and exhausted. Ignorant of his true condition, some of the household pity him, and no sooner touch him than they receive the fatal bite.

Hysteria : DR. CHARCOT on Hysterical Contractions.

In his contributions to the *Gazette des Hopitaux*, Dr. Charcot, last year, mentions that Briquet has traced with great precision the symptoms of hysterical palsy, which he calls a rare complication, not having noticed it more than six times when he wrote his book. In one case contraction occupied but one limb, in two others it put on the guise of hemiplegia, and in the last three it appeared like paraplegia. In fact, hysterical paralysis may appear in different forms, and we may verify this fact in two cases before us recently, in one of which there was the paraplegic, in the other the hemiplegic, form of the disease.

In the first case, A. E., æt. 42, had been affected with left hemiplegia for twenty months. We see that the superior limb of this side is semiflexed and considerably rigid, as is shown by the

difficulty we find in increasing the flexion and the impossibility of maintaining complete extension. The left lower extremity is extended, its parts are, so to speak, in a forced attitude, the thigh strongly extended from the pelvis, and the leg from the thigh, and the foot deformed as in the most pronounced state of equinovarus; we may add that the adductor muscles of the thigh are strongly retracted. In short, all the joints are uniformly rigid, and the member in its totality forms a species of inflexible bar, which permits, when the foot is lifted, a large part of the lower part of the body of the patient to be moved. I insist on this locking of the lower limb joints because this, which is very rare indeed in cerebral apoplexy resulting from apoplectic effusions, is the rule in hysterical contraction. However, in this case before me I must notice, judging from my observations, that the permanent position of the thigh and of the leg is quite exceptional. This is an example of permanent contraction in the full acceptation of the word, and I have assured myself of this by examining the patient and finding it unmodified during the profoundest sleep, and that it gets neither better nor worse throughout the day; it is only the sleep which is caused by chloroform which makes it suddenly disappear. However, since the contraction has existed as I said for about two years, nevertheless, as you see, the nutrition of the muscles has not sensibly suffered; and I may add that the muscular contractility is nearly normal. I may notice, in passing, that when the end of the foot is strongly raised up, there is produced in the lower limb which is contracted, a convulsive tremor, which persists for a long time after that the foot being let go, the limb has resumed its former attitude. You are aware that a similar tremor is generally noticed in the paralysis with contraction due to an organic spinal lesion, *i. e.*, when the lateral tracts are *sclerosed*; I have, however, noticed it in many cases of hysterical paralysis which terminate in cure. You also see that the said affection has not the same diagnostic importance attached to it by some.

Putting aside the affection of the lower limb, all the other peculiarities might, in reality, be attributed to the effect of organic hemiplegia, which has resulted from a deep injury of the cerebellum, that is, from softening or hemorrhage. Add to this the following piece of resemblance—hemiplegia in our patient came on suddenly during an attack, after which the patient remained unconscious for several days. Whilst we notice this similarity, we see at the same time the differences, which are numerous, peremptory, and actual differences; in the majority of cases these same permit us to refer with facility the hysterical contraction to its true origin.

1st. Take notice of the want of facial paralysis, and of deviation of the tongue when put out of the mouth; you know

that these phenomena always exist to a certain degree in hemiplegia of cerebral lesion with apoplectic foci.

2nd. Then note the existence of analgesia, and anaesthesia, almost absolute, and extended to the half of the paralyzed limb, face, trunk, etc. This alteration of sensation includes the skin, muscles, and perhaps the bones, and stops just at the middle line. This kind of generalized anaesthesia to one whole side of the body, head, trunk, and limbs, this limitation, I would call it geometrical, of the anaesthetized parts by a vertical plane dividing the body into equal halves, belongs to hysteria. Such phenomena are not noticed in the hemiplegia of cerebral origin, and if we had to do with spinal hemiplegia the result of lesions of one side of the medulla spinalis, the anaesthesia, as Brown-Séquard has remarked, would occupy the side of the body opposite to that of the motor paralysis.

3rd. We would also point to other distinctive characters—the patient is intelligent, and nothing makes us doubt as to the truthfulness with which she narrates the history of her attack. This is the story she tells:

She never had any hysteria before, and the disease arose at the age of 34, after a violent moral shock, with an attack of loss of consciousness; it appears that this attack had taken the epileptic form of hysteria. During the attack our patient fell into the fire, and you may remark on her face the traces of the burns made by this accident. New attacks then, clearly hysterical, supervened, and were repeated in the succeeding years, but only when she reached 40 was it that there appeared the permanent symptoms of hysteria which we are now studying; the accompanying symptoms will furnish us with characteristic traits.

a. Menstruation, which was regular until the moment of the first attack, became perturbed, and patient suffered from intercurrent vomiting of blood; the abdomen is considerably enlarged, and pressure on it shows a lively pain in the left ovarian region; the pain has a special character, and is accompanied with peculiar sensations, which diffuse towards the epigastric region, and which the patient says for the most part precede the attacks. These pains, as well as the swelling of the abdomen, still exist.

b. At the same time the patient was affected with obstinate retention of urine, which generally required the catheter.

c. Things were in this condition, when, in October, 1868, she had a severe attack accompanied by convulsions, and followed by an apoplectiform state, with stertorous breathing, and then, at once, hemiplegia commenced. Well, gentlemen, this notable meteorism, these pains in the ovarian region, and retention of urine, constitute a mixture of symptoms almost decisive as to diagnosis. Nothing like these is observed among the precursors of hemiplegia from cerebral causes, and, on the other hand, it is

most common to see it precede the appearance of the permanent phenomena of hysteria, hemiplegia, and paraplegia. This point was not neglected by Briquet, and Laycock speaks as follows of it :

" Paralysis of the lower limbs, more or less severe, is always accompanied [he might have added *preceded*] by a corresponding degree of perturbation of the pelvic functions; the perturbation shows itself with constipation, tympanitis, and vesical palsy, with augmented or increased urinary secretion, and ovarian irritation."

d. When, a year ago, E. came to the Salpetrière Hospital, the hemiplegia had lasted seven or eight months. Besides the characteristically marked peculiarities noticed, the condition of the paralyzed joints might have been noticed in aid of the diagnosis of hysterical paralysis ; the upper limb was flaccid, the lower limb, however, presented a very marked rigidity at the knee. This would be a considerable anomaly in hemiplegia from cerebral lesion, since in the latter the tardy rigidity is always by preference in the upper extremity.

e. The contraction which occupies at the moment the upper limb dates only from a few months back, and appeared after an attack. You know that the tardy contraction of haemorrhage or cerebral softening proceeds in another way — the contraction establishes itself slowly, and in a progressive way.

Taking into account all the circumstances I have enumerated, nothing is easier than to assign to the disease of E. its true origin, and we may say the same of the following case :

B. Alb., 21 years of age, a foundling, has suffered for two years from permanent contraction of the inferior limbs, which are, as you may remark, extended and rigid. The muscular contraction, as in E., is not diminished, and the limbs are generally emaciated, partly in consequence of obstinate vomiting, which is opposed to the nutrition of the body ; besides this, we notice almost complete analgesia of the paralyzed limb. Here are the circumstances which are decisive, and which permit us to be sure of the diagnosis : 1. Alb. has had hysterical attacks since the age of sixteen. 2. She has suffered from retention of urine, which frequently requires catheterism. 3. The abdomen is very tympanitic. 4. The ovarian regions are painful on pressure ; if this is a little prolonged, it suddenly causes an attack. 5. The contraction of the lower limbs came on suddenly without transition, and this is a point we noted in the previous case ; now you know that such like phenomena are not noticed in sclerosis of the lateral cords. As you notice, gentlemen, nothing is more simple than the clinical interpretation of these two facts, as far as diagnosis is concerned. But the prognosis may be difficult. In E. the paralysis with contraction has remained unchanged for two or three years ; this contraction may give way any day, or will it persist as an incurable infirmity ?

We may put these questions without giving a categorical reply. It is possible that, in spite of the long duration of the contraction, it may disappear and leave no trace behind it, and perhaps to-morrow, perhaps three days, or in some years may do nothing to invalidate this assertion; in any case, where the case take place, it may take place suddenly.

From to-day to to-morrow all may enter into order again, and if chance should grant that at this moment the hysterical diathesis should cease, the patient would take on her ordinary life. On this subject I cannot prevent myself from stopping a moment on the face of these rapid cures, which are unheeded for, of a disease which for a long time has been marked by its tenacity and its resistance to all therapeutic agents. A lively moral emotion, a combination of events which strike the imagination vividly, the return of menstruation, which has been suppressed for sometime, etc., these are the frequent occasions of such sudden cures. I have been witness to this in these cases in this hospital, which I ask your permission to narrate briefly.

1. The first occurred on a contraction of the lower limb, which had lasted at least four years. On account of the bad conduct of the patient, I was obliged to give her a vigorous lecture, and this ended by my giving her notice to quit hospital. On the next day the contraction had disappeared. This fact is the more important, because convulsive hysteria was only one of the past facts in the history of the patient; for two or three years the contraction was the sole manifestation of the grave neurosis.

2. The second case refers to a female patient also affected with contraction of one limb. True hysterical crises had disappeared for sometime. This woman was accused of theft, and the contraction which had lasted two years suddenly disappeared by the moral shock produced by the accusation.

3. In the third case the contraction had assumed the form of hemiplegia of the right side, and was stronger in the upper limb. The cure was sudden eighteen months after the commencement of the disease, after a severe contradiction she received. There was not, at that moment, any anaesthesia, and the patient, whilst she confessed having suffered curious nervous disturbance, denied the existence in past times of true hysterical fits.

It is necessary that you should know the possibility of these cases, which even in our days make it said that a miracle is present, and of which charlatans are wont to boast. In past ages such cases are frequently invoked to prove to the most sceptical the influence of the supernatural in therapeutics. In this respect you will read with interest an article published in the *Revue de Philosophie Positive* (1st April, 1869) by the respected Littré, where he alludes to a writing entitled "Un Frammento di Medicina Retrospectiva" (Miracoli di S. Luigi) in which is found the history of

many cases of paralytic persons cured after making pilgrimages to S. Dionigi, at whose tomb were deposited the remains of King Louis IX. There are three cases among others, interesting to us, because of the accuracy of the particulars. They refer to women, still young, suddenly affected by contraction of one of the lower limbs, or of two of the same side, accompanied by considerable anaesthesia. In these women the cure had taken place suddenly, and in the midst of circumstances worthy of exciting the imagination ; you see, gentlemen, that things have but little changed since the thirteenth century.

But if the cure of these patients is possible, or even likely, it is not necessary, and it may be that the contraction persists as an incurable affection. This is an assertion which it will be easy for me to justify ; but permit me to notice first of all, that in the major part of authors you will find on this point merely vague assertions, and but little satisfactory.

I present you a woman, who is now fifty-five years of age, and who was taken eighteen years ago after an hysterical attack, with paraplegia with contraction, of which you can now recognize the principal characters. This contraction gradually or transitorily ceased or diminished. But from sixteen years ago up to this moment it has undergone not the slightest modification ; we have to do, even in this case, and even yet, with a true rigidity of the muscles, with predominance of action of the extensors and of the adductors. Although the immobility of the lower limbs existed sixteen years, the ligamentous portions do not participate in the stiff joint, as far as the examination made during anaesthetic sleep has permitted us to ascertain. The deformity of the foot alone, which reminds us of varo-equinus, is not modified during chloroformization ; the muscles of the leg and thigh are greatly atrophied and faradaic contraction does not exist in them. For many years past hysteria seems absent from this patient, and it is very unlikely that any event in the world can change in any way the state of her lower limbs.

What condition is then superadded to maintain the existence of the paraplegia with stiffness of the limbs ? Evidently in recent cases of hysterical contraction the organic modification, whatever it may be, and whatever seat it may occupy, which produces the rigidity, is very slight and transitory, since the corresponding symptoms may disappear suddenly without transition. It is a certainty that the means of investigation which we have at present under our power, and the most diligent necropsy, *cannot* find in such cases any traces of such an alteration.

Is this the case in inveterate cases ? I believe not, and feel myself authorized, founding my belief on an analogous fact, to say that in this patient there has been produced at a given moment a sclerosis of the lateral cords, a lesion which the autopsy

would permit us to discover. It happened to me, in fact, once to observe, in an hysterical woman affected for sixteen years with contraction of all the limbs, which came on suddenly, a sclerosis which occupied symmetrically, and for about the whole length of the medulla, the lateral columns. Many times this woman had seen the contraction cease for a moment; but after the last attack it had been definitive. From the preceding facts it is certainly legitimate to draw some conclusions relative to the physiology and pathology of hysterical palsy.

From the considerations above cited it results that the lateral columns, or at least the posterior part of them, that which maintains the permanent contraction in cases of *sclerosis in plates* or in *fascicles*, these cords, I say, are marked as the seat of those organic modifications which at first were temporary, and are the causes of hysterical contraction. In time these modifications, whatever they may be, give place to more profound material alterations; and, in short, a true sclerosis takes place. Perchance this is not beyond the reach of art; but in any case it no longer permits us to hope for the sudden disappearance, which forms one of the characteristics of the disease, when not yet arrived at the more advanced phases of its evolution.

Is there perhaps a sign which permits us to indicate with certainty the character of the case, to know, for instance, if the sclerosis is or is not definitely seated in the lateral cords? I don't believe that in the actual state of science, we can point to one symptom which offers an absolute prognostic value in this point.

The convulsive shaking of the contracted limbs, whether provoked or continuous (tonic spinal epilepsy), a certain degree of emaciation of the muscular masses, a little diminution in the energy of electric contraction, ought not to be regarded, as I glean from my observations, as making us absolutely despair to see the contraction disappear without leaving any trace. On the other hand, atrophy, limited particularly to a certain group of muscles, especially when accompanied by fibrillary contractions analogous to those noticed in progressive muscular atrophy, and a notable weakening of faradaic contractility, ought to make us suppose that not only the lateral cords are profoundly affected, but that in addition the anterior cornua of the grey substance are attacked. Up to this moment I have not been able to observe these last symptoms, except in the case of old hysterical contraction, when there was no longer any hope to see the affected limb resume its normal functions.

I may add that the existence of an organic lesion of the spine more or less profound, would be almost certainly ascertained if, under the influence of sleep from chloroform, the rigidity of the limbs only slowly disappeared, or persisted in a high degree. In my opinion, until said symptoms are not well marked, it is not

necessary to despair in any way. On the other hand, it is important to remember that lateral sclerosis, even when well marked, is not—and I hope to show this—an incurable disease. In the women who have attracted our attention, the contraction occupied the whole of one limb, or both, or even more.

These are, however, cases in which the spasmodic rigidity limits itself to part of a limb, to the feet, for instance, producing a kind of hysterical distortion.

Dr. R. Boddaert recently communicated such a case to the Society of Medicine of Ghent, which was very interesting; and analogous cases have been related by Little, Skey, C. Bell, and others.

If certain conveniences did not oppose themselves to it, I might refer in my turn, in all these particulars to the history of a case published by Boddaert. It suffices me to say that a young girl, æt. 22, very nervous, and belonging to a family in which nervous diseases were predominant, was attacked, three years before and suddenly, without known cause, and without having presented the characteristic symptoms of hysteria, with a painful contraction of the left leg. This contraction, which gave to the foot the typical appearance of equinovarus, had disappeared several times in the first year, but seemed to have been definitive for two years. Many muscles of the limb underwent a profound atrophy, and showed, in addition, very evident fibrillary contractions, after electric excitation. In consequence, I believe, that there is little probability of seeing the resolution of the contraction, the rather too, since it scarcely becomes relieved during anaesthetic sleep; I add the following interesting clinical note: "And this patient was free from hysterical attacks at least in the course of the last month."

DR. BENEDICT, OF VIENNA, ON HYSTERIA.

We continue our analysis of this learned Professor's Medical teaching commenced in our May number. Dr. Benedict remarks that we must admit, above all, that hysteria may perfectly, in some cases, present the picture of what may be the result of some central or peripheral disease of the nerve-centres. There are, however, certain symptoms which almost solely are seen in hysteria, or in hysteria with its numerous complications; and there are the painful cramps of the stomach, the pharynx and larynx, and the laughing and weeping cramps; but, above all, the spinal irritation, which has become so important a symptom for electro-therapeutic treatment. To the weightiest and most constant symptoms of hysteria belong those pathological vaso-motory appearances, which exhibit themselves partly in the greater vessels and partly in the capillaries. Spasm of the vessels up to loss of pulsation take place in the great vessels, with asphyxia of the parts, coldness, pallor, pain, and anaesthesia, only it is a property of hysterical

asphyxia, that it generally departs when there is real danger to the vitality of the part.

In the same way there are quasi-paralytic widening of the greater or smaller vessels, or of the capillaries, with feeling of heat and burning pain, which are quite common. A great tendency to change in the kind of symptoms forms another nearly characteristic peculiarity of hysteria. This cannot be said without some qualification, since in the case of *sclerosis in plates* a similar, though perhaps not quite so rapid, a change may be noticed. Certain symptoms are, in hysteria, at any rate, extremely uncommon—such are palsies of the facial or oculo-motor muscles; still, there can be no key to the diagnosis given from the absence of such. Hysterical palsies are frequently complicated with deep anaesthesia of the skin, muscles, and bones, so that we may, in many cases of deep motor and sensory paralysis, with great probability determine upon the hysterical nature of the case. We may also say that Basedow's (Graves') disease is a central disease of the nerve-cells; which often comes after hysteria, and is accompanied by the most marked symptoms of that disease.

We have seen, in speaking of causation, how the symptoms of hysteria commence from all of the reflected nerves of the periphery and of the hemispheres of the brain, and how they may cause alteration in distant parts of the nervous system and in other organs. In order to understand the mechanism of this reflexion, we must above all observe hysteria of the skin, etc., in their most simple forms, and especially in their connection with excitement of the cerebral hemispheres.

It is well known by all that by cerebral excitement the vaso-motor nerves of the face can be influenced in blushing and pallor, and that through similar excitation the nerves of the heart, and the sympathetic nerves of the organs of the abdomen, and many nerves of secretion may be palsied. In the same way we recognize the wide-spread cramp of the vessels, caused by psychical influences, in shuddering. Quite similarly do the cerebral hemispheres act in exciting or paralyzing on the sympathetic fibres, in the widest sense of the word, and cause thereby pathological conditions. Lasting pallor and coldness, and, on the other hand, reddening with subjective and objective rise of temperature, belong to the most common appearances remarked in hysteria of the skin, even when psychical influences are the cause of it. From this we must conclude that a far greater dependence of the sympathetic filaments exists with the activity of the cerebral hemispheres than physiologists have taught. Dr. Benedict holds that hysterical diseases of all parts are quite analogous, and arise either from spasm or paralysis of the vaso-motor nerves of the parts.

That chronic hyperæmia leads to the appearances of chronic inflammation, by means of increase of the cellular tissue and the

formation of scars, is a well-known fact, and this constructs the bridge to the few pathologico-anatomical facts which we know concerning hysteria, namely, to those scleroses pointed out by Charcot, especially the strings in hopeless cases of hysterical contraction, and such cases of myelitis as that described by Benedict in 1871, occurring in hysterical paralysis. "Spasms of the vessels, with its direct consequences, and secondary consecutive atrophy, or palsy of the vessels, with or without consecutive inflammation and their consequences, are thus become, in the highest degree, the probable mechanism of hysteria, so that this disease ought soon to be withdrawn from the list of simple neuroses. The influence on the vaso-motor nerves is, as we know from *aetiological* considerations, a reflex one, and we can describe the hysterical situation as an inborn or acquired increase of the reflex irritability of the vaso-motor nerves." In no other disease is it so clear that the physician must not only be a man of science, but also a psychologist. The will has great influence over the attacks. In many cases religion does more than medicine to influence hysterical cases. Amenorrhœa is often the consequence of hysteria, and diseases of the genital organs are a frequent cause of it. Dr. Benedict speaks in great praise of Dr. Chapman's ice-bags in the treatment of hysteria.—*The Doctor.*

Editors' Book Table.

[NOTE.—All works reviewed in the columns of the CHICAGO MEDICAL JOURNAL may be found in the extensive stock of W. B. KEEN, COOKE & Co., whose catalogue of Medical Books will be sent to any address upon request.]

BOOKS RECEIVED.

Hysterology: A Treatise, Descriptive and Clinical, of the Diseases and Displacements of the Uterus. By EDWIN NESBIT CHAPMAN, M.A., M.D., late Professor of Obstetrics, Diseases of Women and Children and Clinical Midwifery in the Long Island College Hospital. New York: Wm. Wood & Co., 27 Great Jones Street. 1872. Pp. 504.

We have looked over this volume with much interest. It is well illustrated. It elucidates the subject clearly for the student, and the advanced practitioner will be delighted to find in it much valuable information unconnected with womb-burning, slitting and impaling. A book up to the times and for the times.

The Lettsonian Lectures, Delivered at the Medical Society of London, 1872, on the Pathology and Treatment of some Diseases of the Liver. By S. O. HABERSHON, M.D., Lond., F.R.C.P., Physician to and Lecturer at Guy's Hospital, etc. Philadelphia: Lindsay & Blakiston. 1872. Pp. 91.

Like everything from Dr. Habershon, excellent in principle, clear in diction, satisfactory in practice.

Thermic Fever, or Sun-Stroke. By H. C. WOOD, JR., M.D., Professor of Medical Botany, and Clinic Lecturer on Diseases of the Nervous System in the University of Pennsylvania; Physician to the Philadelphia Hospital. Boylston Prize Essay. *Pro bono publico.* Philadelphia: J. B. Lippincott & Co. 1872. Pp. 128.

The Ten Laws of Health; or, How Disease is Produced and can be Prevented. By J. R. BLACK, M.D. Philadelphia: J. B. Lippincott & Co. 1872. Pp. 322.

This is intended for a popular treatise on the ground that the profession are bound to inculcate the modes of preserving health, as well as restoring it when impaired. It is well written, and in the main adapted to the purpose in view.

A Manual of Qualitative Analysis. By ROBERT GALLOWAY, F.C.S., Professor of Applied Chemistry in the Royal College of Science for Ireland; author of "The Second Step in Chemistry," "The First Step in Chemistry," etc. From the Fifth re-written and enlarged London edition; with illustrations. Philadelphia: Henry C. Lea. 1872. Pp. 402.

A most thorough and complete exposition of the subject, which ought to be in the hands of every medical student, whether before or after entering upon practice.

The Physiology of Man; Designed to Represent the Existing State of Physiological Science, as applied to the Functions of the Human Body. By AUSTIN FLINT, JR., M.D., Professor of Physiology and Physiological Anatomy in the Bellevue Hospital Medical College, New York, etc., etc. NERVOUS SYSTEM. New York: D. Appleton & Company, 549 and 551 Broadway. 1872. Pp. 470. [Fourth volume of the Series.]

Notice in preparation.

*Editorial.**Sanitary Reform.*

The mortality lists for the month of July, 1872, present an aggregate of 1,372, or a daily average of 44½ deaths. This frightful mortality has increased during the first week of August to about 60 per day, or an increase of 25 per cent. For the last five years, during which sanitary statistics have been recorded, the annual mortality has reached its maximum during the latter part of August and first of September. Should this rule apply, and the same rates of progression prevail, in this, as in former years, the maximum death rate for 1872 will be something truly terrible.

We have no intention to create a panic either at home or abroad, as there is no necessity for any such feeling, but only to urge upon the attention of the city government and of citizens generally, the absolute necessity for the organization and maintenance of a special Department for the preservation and protection of Public Health.

Some five years ago, indeed, an effort was made by certain public-spirited physicians to secure the legislative sanction necessary to the accomplishment of this object; but the effort was rendered abortive, and the legislation inefficient, through the machination of private interests, to which the law was perverted, in its very construction, and the public good made subservient.

The destruction of the city by the Great Fire has given the opportunity for the inauguration of municipal reform in several directions in which its necessity, long felt by the more intelligent, was thus clearly demonstrated to all. Let the opportunity be improved in this direction likewise. Let not our city, rising like a phœnix from its ashes, prove a Necropolis, its marble palaces magnificent tombs.

For proof of the necessity for sanitary reform, let physicians read the reports of the so-called Board of Health, which should no longer be suffered to constitute the standing jokes of newspaper reporters, but should be read as notes of warning, to all who have the future health and prosperity of the city at heart. We have been playing at sanitary reform long enough; five years

of endurance, and over a quarter of a million of dollars for the performance, ought to satisfy its most enthusiastic admirer, with the length and cost of the farce.

Now, let us go to work in earnest, inaugurate sanitary reforms, based upon scientific principles, and approved by common sense and general experience—reforms which shall make themselves apparent to all; which shall have removed reeking heaps of garbage from our streets and alleys; abolished open privies, foci of typhoid fever, from back yards; broken up forever the infamous traffic in swill-milk, by which so many hundreds of children are annually sacrificed upon the altar of mammon; which shall have taught the people the rudiments, at least, of the laws of health, and compelled their observance; and shall have abolished moreover all contracts.

Let us at the close of another five years have completed a sanitary-topographical survey of the whole city, which shall exhibit the sanitary condition of every lot, and be capable of indicating all future changes thereupon; epidemiological charts, exhibiting the limits, and variations in the intensity of epidemic and endemic diseases; meteorological tables, indicating the relation of atmospheric influences to human health; ethnological charts and tables, showing the influence of nationality and national habits in the production and modification of disease. Let something be done which shall earn confidence at home and respect abroad. Let us have a mass of statistics to which medical men can refer for information in the elucidation of sanitary questions, with a feeling of security in their authenticity, accuracy, and good faith, instead of a collection of long-winded "reports" as useless practically, as they are unintelligible grammatically.

Let us, by studying the nature and character of the influences and agencies detrimental to public health, be able to counteract them, and be prepared to present statistics of a steadily decreasing, instead of an increasing, ratio of mortality.

There is scarcely an intelligent physician in the city, who does not recognize the necessity for a thorough change in the Health Department. Unfortunately, this can only be accomplished by a radical change in the law under which the Department was organized. The first step toward this end must be the rescinding of that legislative absurdity by which a member of an adminis-

trative body becomes his own executive officer. That this mischievous clause in the law has been the principal obstacle to its efficient execution is well known and distinctly avowed by members of the Board.

Inadequate as is the law, in relation to its proposed objects, it might still have been made to accomplish much good, in the hands of some of its administrators, who have throughout been possessed of intelligence and actuated by good faith, had not this insuperable barrier to the efficient execution of any law constantly interposed.

So long as this law remains unaltered, the Health Department of the city of Chicago will stand a tribute of legislative gullibility to personal trickery.

H.

St. Joseph's Hospital.

This hospital is situated in the North Division of the city, on the corner of Sophia and Burling streets, and under the control of the Sisters of Charity. It is a very large, well-ventilated building, perfect in its internal appointments, affording every facility to those wishing medical treatment—whether in the private rooms, or general wards—and has connected with it a "Visiting Staff" of physicians and surgeons of recognized talent and ability.

In the lecture room of this institution, a series of clinical lectures will be delivered to the students of medicine, illustrated by the various diseases in the general wards, and every care taken to make the instruction practical and complete.

On the 16th of Sept. prox., the regular meeting of the visiting staff will take place in their room at the hospital, when, among the business transacted, assignments to duty will be made, and a course of lectures agreed upon. The necessary information will be then furnished all colleges at the earliest practicable moment.

We give below the gentlemen comprising the "Medical Board" of St. Joseph's Hospital:

VISITING STAFF OF PHYSICIANS AND SURGEONS.

Medical Department—Professors J. P. Ross, J. H. Etheridge, E. L. Holmes, and F. B. Norcom, M.D.

Obstetrical and Gynecological Department—Professor De L. Miller, and A. H. Cook, M.D.

Surgical Department—W. D. Winer, M.D., and Profs. J. W. Freer, M. Gunn, and E. Powell.

STAFF OF EXTERNES.

O. J. H. Adams, M.D., and L. W. Case, M.D.

CONSULTING STAFF.

Prof. H. A. Johnson, and E. Schmidt, M.D.

J. W. FREER, *President pro tem.*
F. B. NORCOM, *Sec. pro tem.*

Brainard Medical Society.

The Society met in the rooms of the Young Men's Christian and Library Association, in Logansport, Indiana, June 27th, 1872.

Dr. L. D. Glazebrook, President elect, delivered his inaugural address, and took the chair.

Members present : L. D. Glazebrook, James Thomas, I. B. Washburn, W. S. Cleland, J. B. Moore, J. B. Hoag, H. Garner, G. W. Nafe, and W. H. Bell.

On motion, Drs. Wm. Lomax, Williams and Ayers, of Grant Co. Medical Society, Dr. Dickens, Wabash Co. Society, Dr. Ballou, White Co. Society, and Dr. Beckner, Newton Co. Society, were elected honorary members.

On motion, all the members of the profession present were invited to participate in the proceedings of the meeting. Those present were G. N. Fitch, A. Coleman, A. B. Buchanan, J. Herman, J. M. Justice, R. Faber, and J. H. Shultz, of Logansport, and J. A. Adrian, of Onward.

Dr. Hoag read an essay on the Duties of Physicians, which was discussed by Drs. Fitch, Ayers and Lomax.

Dr. Bell read a paper on Neuralgia of the Heart. It was discussed by Drs. Fitch and Hoag.

At this time a number of physicians arrived. They were J. A. Comingore, R. N. Todd, and Thad. M. Stevens, members of the faculty of the Indiana Medical College ; Drs. R. Q. Wilson, E. A. Armstrong, I. C. Johnson, Wm. Scott, H. C. Cole, and W. K. Mavity, of Kokomo, members of the Howard Co. Society; Dr. Higgins, Peru, and Drs. J. A. Meek and O. C. Irwin, Bunker Hill, of the Miami Co. Society.

Dr. Washburn read a paper on *Epidemic Meningeal Typhus*, or Spotted Fever, which gave rise to a very lively discussion, participated in by Drs. Comingore, Fitch, Todd, Scott, Stevens, Cole, Bell, Cleland, Hoag, Wilson, Glazebrook, Thomas, and Washburn. The discussion revealed the fact that but few *post mortem* examinations had been made, and those were principally, if not all, of sporadic cases.

On motion, adjourned to meet in Miramac, Ind., Oct. 3, 1872.

I. B. WASHBURN, SEC.